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FOREIGN
RADAR
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GUIDE

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***SUPPLEMENT - New-type Radar (July 1960)

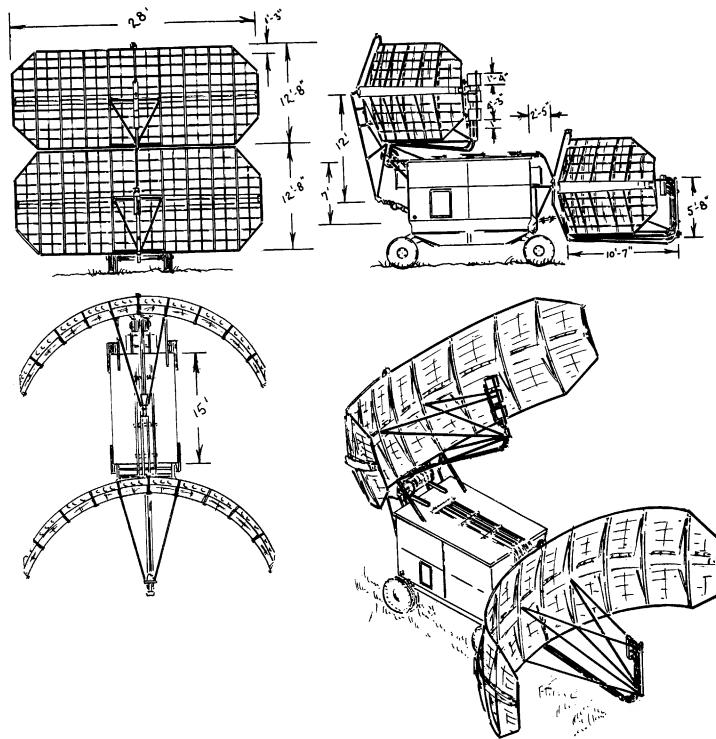
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BAR LOCK

BAR LOCK IS A NEW S-BAND RADAR SIMILAR IN APPEARANCE TO CROSS OUT. IT HAS TWO PARABOLIC ANTENNAS, MOUNTED ONE ABOVE THE OTHER, WITH WHAT APPEARS TO BE TWO S-BAND FEEDS ON THE UPPER ANTENNA AND FOUR S-BAND FEEDS ON THE LOWER. PHYSICAL CONSTRUCTION OF THE REFLECTORS DIFFERS FROM THE BIG MESH (CROSS OUT) IN THAT ONLY ONE HORIZONTAL CROSS MEMBER APPEARS AT THE REAR OF THE REFLECTORS INSTEAD OF TWO AND THE VERTICAL SUPPORTING MEMBERS APPEAR TO BE TWICE THE NUMBER OF THOSE USED ON THE BIG MESH (CROSS OUT) REFLECTORS. SINCE IT APPARENTLY DOES NOT FURNISH HEIGHT DATA, IT IS NORMALLY CO-LOCATED WITH A STONE CAKE OR ROCK CAKE. BAR LOCK RADARS HAVE ALSO BEEN OBSERVED MOUNTED ON BRICK TOWERS APPROXIMATELY 40 FEET HIGH.



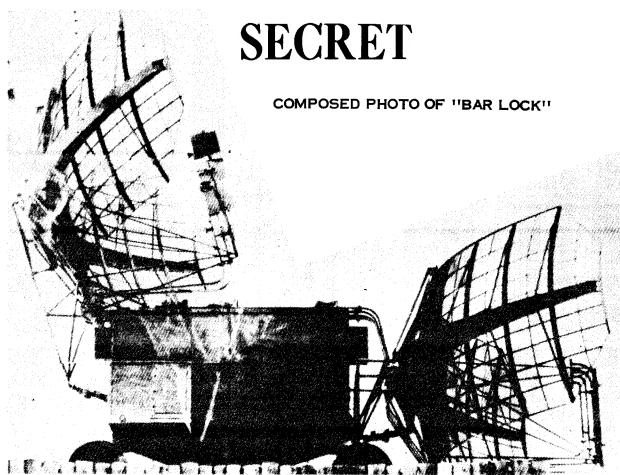
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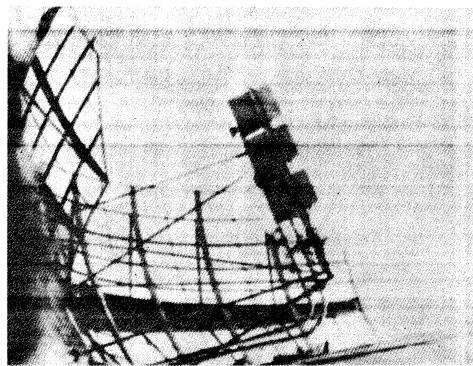
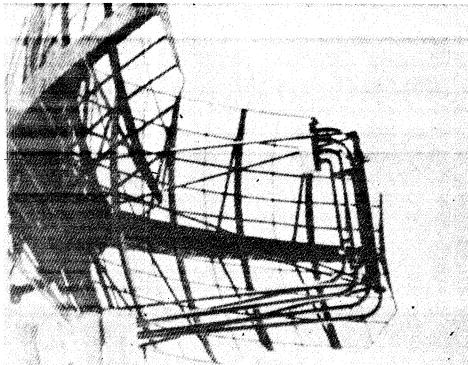
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COMPOSED PHOTO OF "BAR LOCK"



BAR LOCK



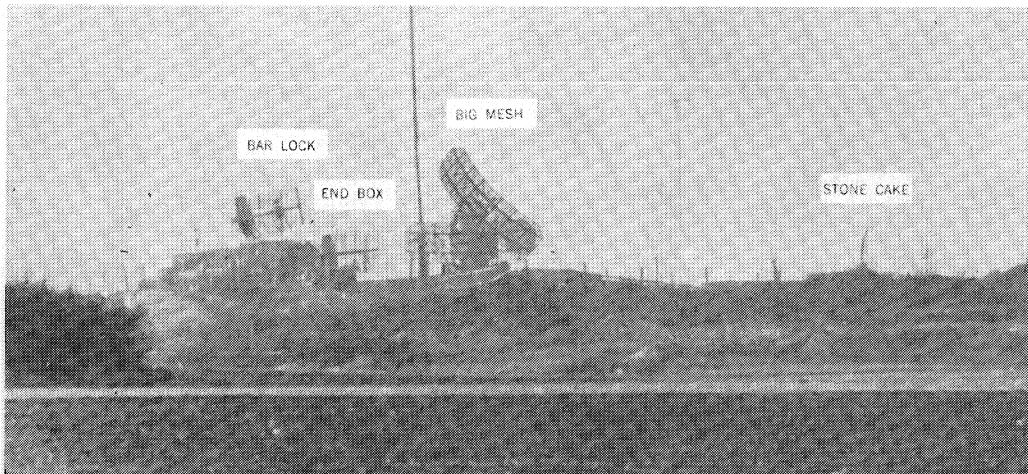
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BAR LOCK RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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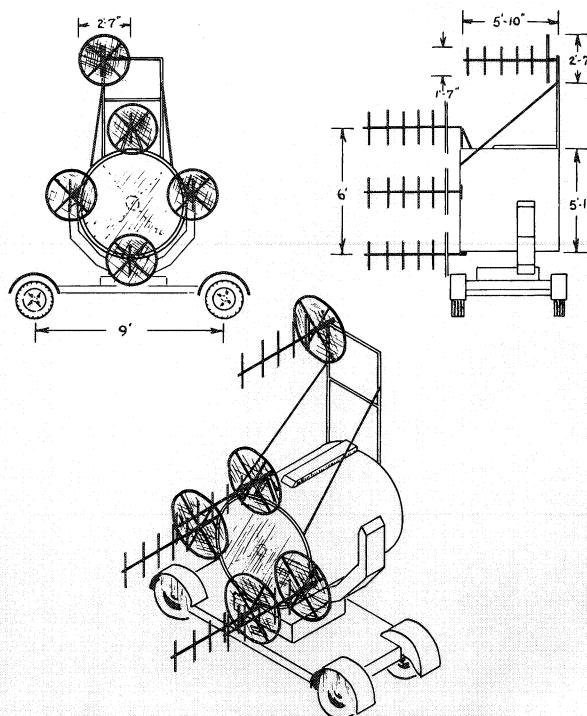
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BEAM TRACK

THE BEAM TRACK, (ALSO KNOWN AS AAN2 MI-7, ELSIE) USED FOR SEARCHLIGHT CONTROL, HAS BEEN OBSERVED IN THE SOVIET UNION AND EAST GERMANY AND APPEARS VERY SIMILAR TO THE BRITISH AA 2 MK II. IT CONSISTS OF A SEARCHLIGHT WHICH MOUNTS FIVE YAGI ARRAYS, EACH OF WHICH IS BACKED BY A REFLECTING SCREEN. IT HAS BEEN REFERRED TO AS "ELsie" IN THE PAST. THIS RADAR COULD ALSO BE USED FOR FIRE CONTROL.

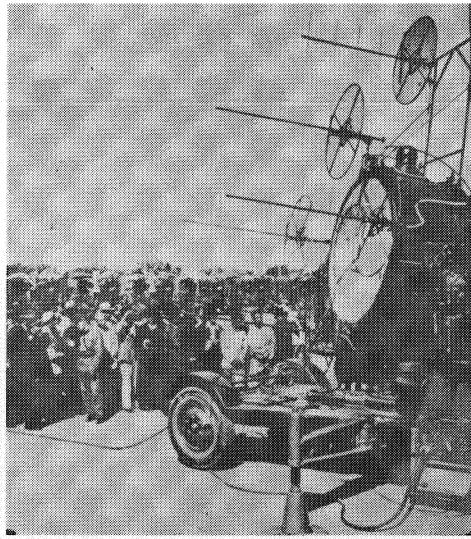
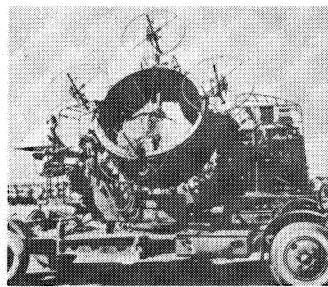
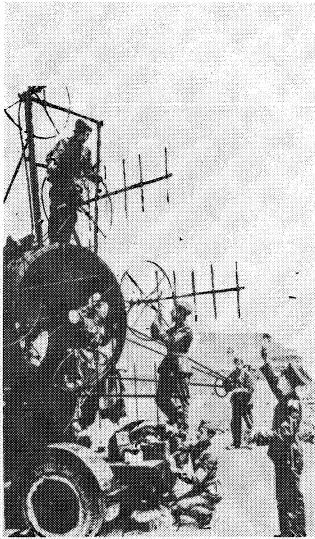


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BEAM TRACK



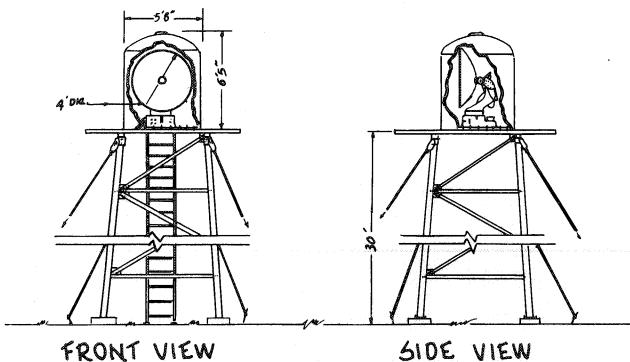
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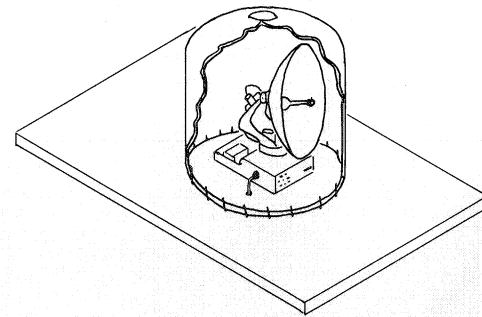
BEE HOUSE

THE BEE HOUSE IS A COAST-WATCH RADAR AND IS BELIEVED TO BE A COPY OF THE US SCR-682A. IT HAS BEEN SEEN PRIMARILY ALONG THE BALTIc COAST OF EAST GERMANY. THE DOME WHICH COVERS THE ANTENNA GIVES THIS RADAR THE APPEARANCE OF A REAL BEE HOUSE.



FRONT VIEW

SIDE VIEW



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BEE HOUSE



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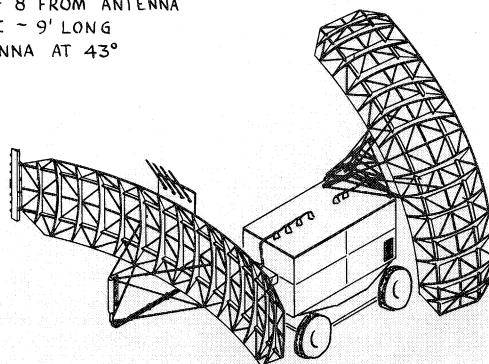
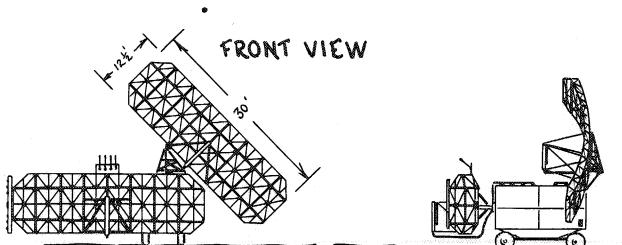
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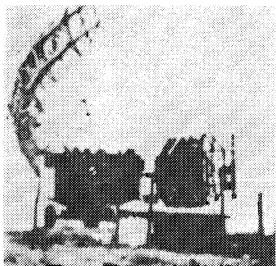
BIG MESH

THE BIG MESH, A V-BEAM RADAR, FIRST APPEARED IN 1957 AND IS VERY SIMILAR IN APPEARANCE TO THE TOKEN. THE REFLECTORS OF THIS RADAR ARE LONGER AND SLIGHTLY WIDER THAN THOSE OF THE TOKEN, AND THE MESH OF THE REFLECTORS APPEARS TO BE OF A LIGHTER CONSTRUCTION. A VERTICAL BAR (NICKNAMED END BOX) IS LOCATED ON ONE END OF THE HORIZONTAL ANTENNA, AND ON FREQUENT SIGHTINGS FOUR PARALLEL YAGI ARRAYS (NICKNAMED WITCH FOUR) HAVE BEEN SEEN RADIATING FROM THE TOP OF THE HORIZONTAL ANTENNA. THE BIG MESH HAS 5 BEAMS OPERATING IN THE S BAND AND ALSO ONE BEAM IN THE L BAND. FROM A GREAT DISTANCE THE MOST DISTINGUISHING DIFFERENCE IS THE POINTED APPEARANCE OF THE TOP OF THE SLANT SAIL OF THE BIG MESH AS COMPARED TO THE CURVED OR STRAIGHT APPEARANCE OF THE TOKEN'S SLANT SAIL.

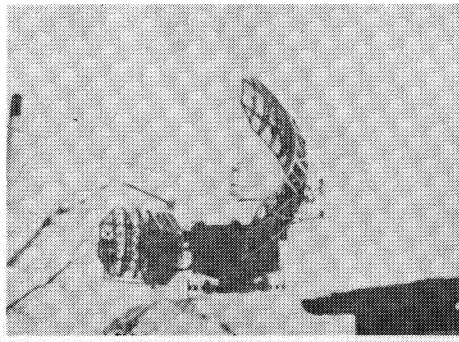
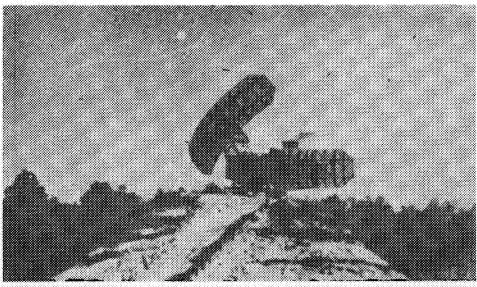
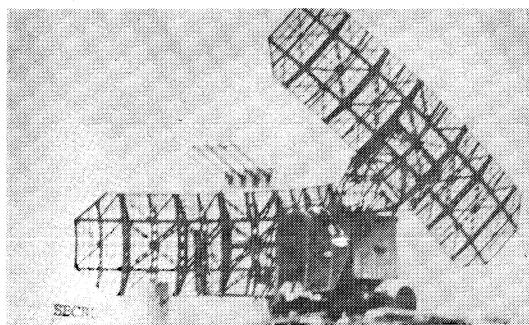


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BIG MESH



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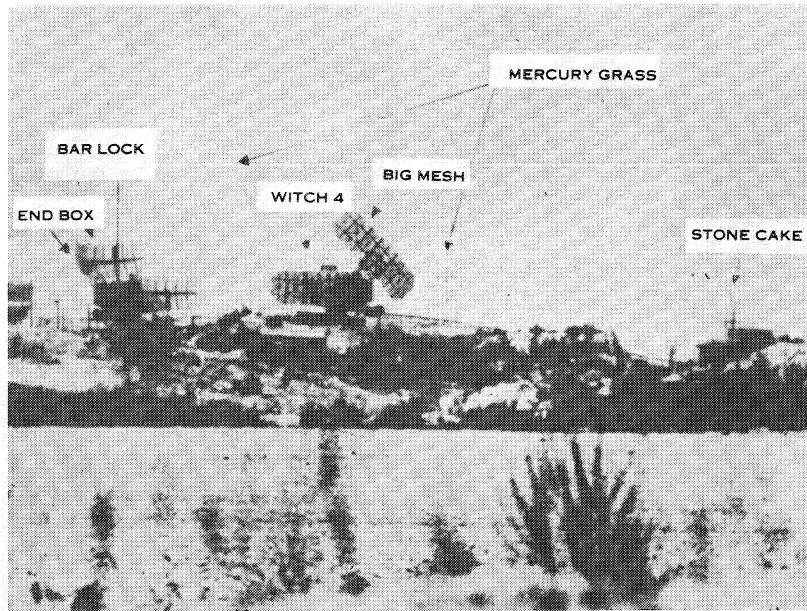
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BIG MESH RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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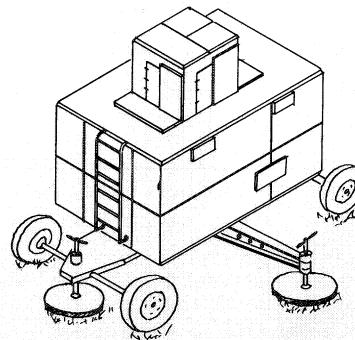
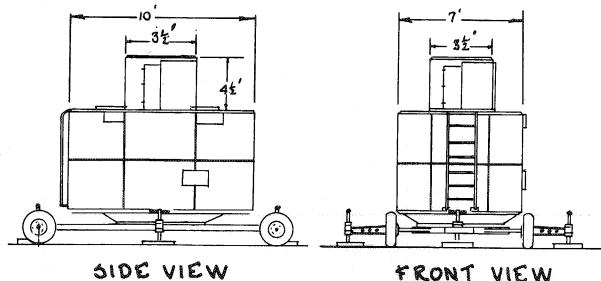
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BOX BRICK

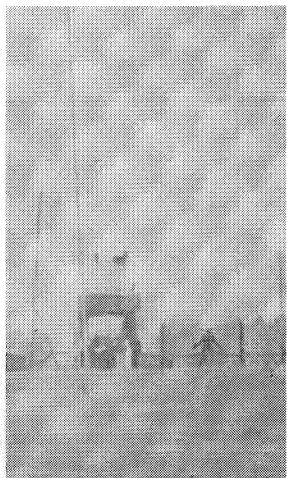
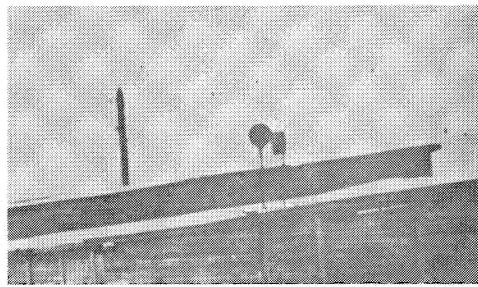
THE BOX BRICK IS A PASSIVE DETECTION DEVICE LOCATED MAINLY NEAR THE WESTERN BORDER OF EAST GERMANY. IT HAS APPEARED IN BOTH MOBILE AND FIXED INSTALLATIONS, AND IS BELIEVED TO INTERCEPT COMMUNICATIONS FREQUENCIES.

THE BRICK SQUARE IS A PASSIVE DETECTION DEVICE USUALLY ASSOCIATED WITH THE BRICK ROUND AND BOX BRICK AND LOCATED MAINLY NEAR THE WESTERN BORDER OF EAST GERMANY.

THE BRICK ROUND IS A PASSIVE DETECTION DEVICE USUALLY ASSOCIATED WITH THE BOX BRICK AND THE BRICK SQUARE AND OPERATES IN THE X-BAND. IT HAS ALSO BEEN SEEN ABOARD SHIP.

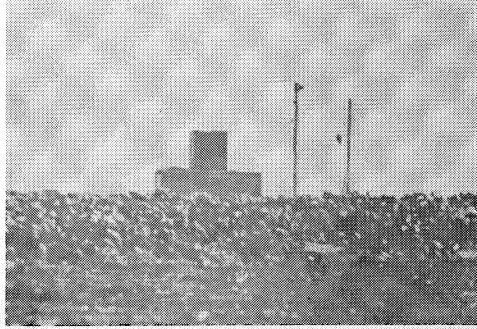


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BRICK ROUND**



BRICK SQUARE

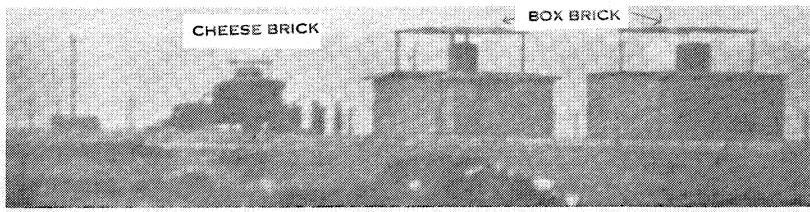
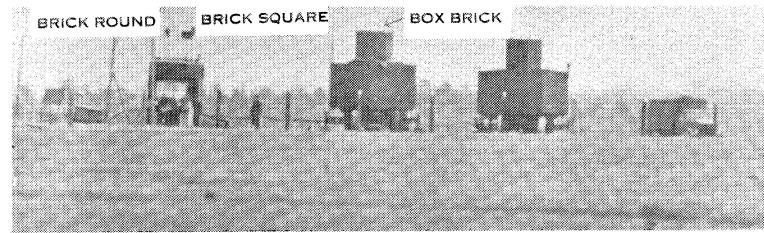
BOX BRICK



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BOX BRICK-BRICK SQUARE - BRICK ROUND RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



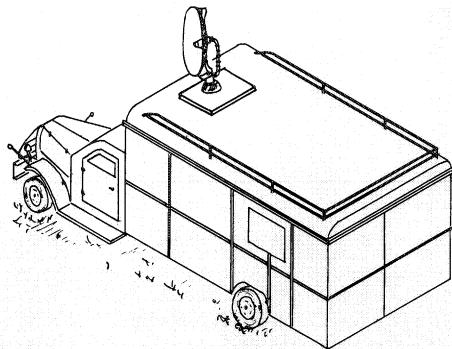
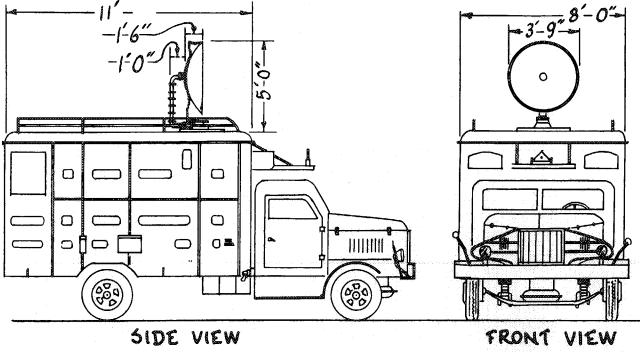
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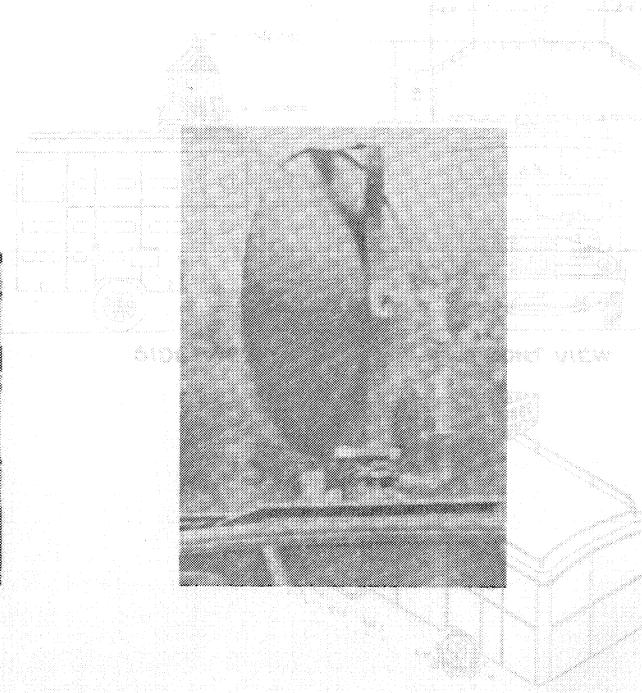
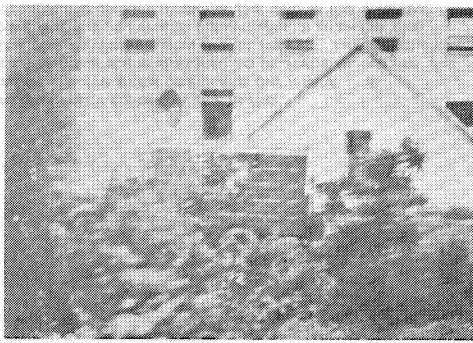
BUD PAN

THE BUD PAN IS A HUNGARIAN RADAR WHICH HAS BEEN SEEN ONLY ONCE, ADJACENT TO AN ELECTRONICS PLANT IN BUDAPEST HUNGARY, AND IS MOST PROBABLY A TRAINER OR AN EXPERIMENTAL MODEL. IT IS MOBILE AND MAY BE INTENDED FOR USE AS COMMUNICATIONS. IT IS BELIEVED TO OPERATE IN EITHER THE S OR X BAND.



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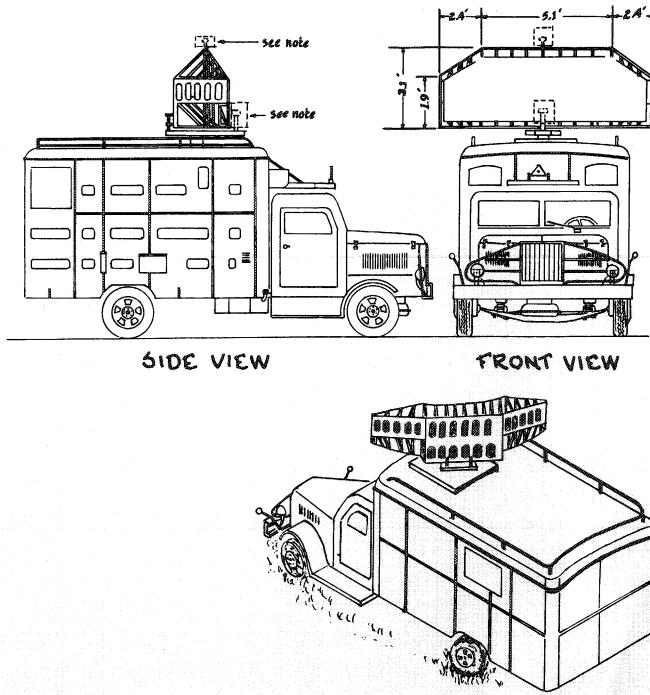
THE BUD PAN IS A HIGH ALTITUDE AIRBORNE DRONE
OF TWO SECTIONS. ONE SECTION IS THE AIRBORNE POD,
PROBABLY CONTAINING A QUADRUPLE LANT OR AN UVS
RECONNAISSANCE SYSTEM. THE OTHER SECTION, WHICH
IS BELIEVED TO BE THE ROLLING OPERATOR IS KNOWN
AS THE CLOUD DUST AND IS LOCATED ON THE
BUD PAN'S TAIL PLATE. TWO PILOTS ARE
IN APRIL 1968. THE FIRST CONVONS OF PILOTS IN
THE BUD PAN ARE TRAINED AT THE TAC ANNUAL.
THE TAC ANNUAL IS HELD IN
ONCE A YEAR.
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BUD SLICE A

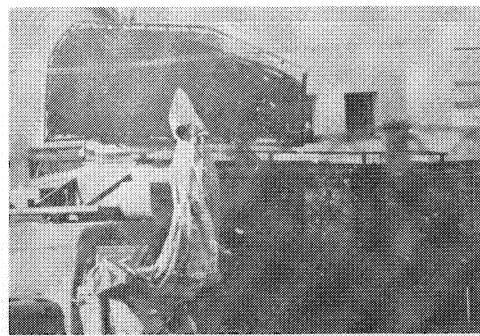
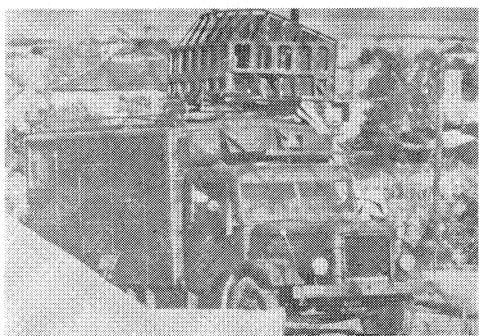
THE BUD SLICE A IS A HUNGARIAN RADAR AND IS ONE OF TWO MODIFICATIONS. IT IS MOBILE AND IS MOST PROBABLY USED AS A GAP-FILLER OR AS THE ACQUISITION RADAR FOR A GCA SYSTEM. IT IS BELIEVED THAT THIS RADAR OPERATES IN EITHER THE L OR S BAND AND IS AN EXPERIMENTAL TYPE. THE BUD SLICE A IS VERY SIMILAR TO THE BUD SLICE B IN APPEARANCE. THE MOST OBVIOUS DIFFERENCE IS IN THE REFLECTOR BRACING OF THE TWO ANTENNAS. THE BRACING ON THE BACK OF THE BUD SLICE A SEEKS TO BE MADE OF STAMPED METAL PARTS WITH OBLONG SECTIONS STAMPED FROM SHEET METAL. THE BRACING ON THE BUD SLICE B APPEARS TO BE MADE OF METAL TUBING. IT HAS BEEN OBSERVED ONLY IN A FACTORY AREA OF BUDAPEST IN 1955.



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BUD SLICE A



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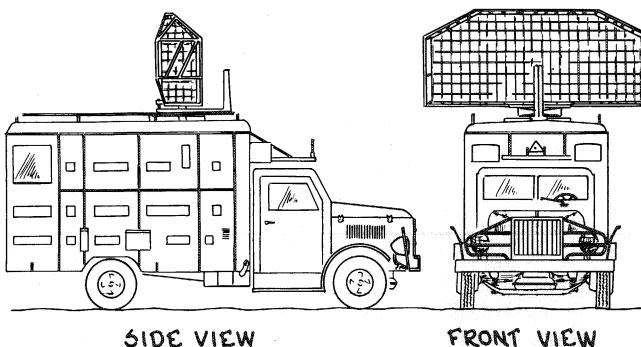
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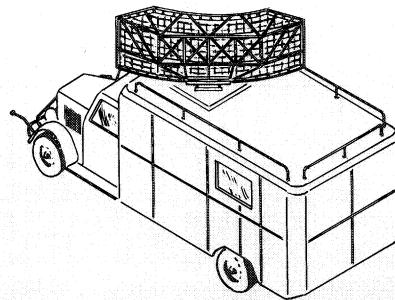
BUD SLICE B

THE BUD SLICE B IS A HUNGARIAN RADAR AND IS ONE OF TWO MODIFICATIONS. IT IS MOBILE AND IS MOST PROBABLY USED AS A GAP FILLER OR AS THE ACQUISITION RADAR FOR A GCA SYSTEM. IT IS BELIEVED THAT THIS RADAR OPERATES IN EITHER THE L. OR S. BAND AND IS AN EXPERIMENTAL TYPE. THE BUD SLICE B IS VERY SIMILAR IN APPEARANCE TO THE BUD SLICE A. THE MOST OBVIOUS DIFFERENCE IS IN THE REFLECTOR BRACING OF THE TWO ANTENNAS. THE BRACING ON THE BACK OF THE BUD SLICE B APPEARS TO BE MADE OF METAL TUBING, WHILE THE BRACING ON THE BACK OF THE BUD SLICE A SEEMS TO BE MADE OF STAMPED METAL PARTS WITH OBLONG SECTIONS STAMPED FROM SHEET METAL. IT HAS BEEN OBSERVED ONLY IN A FACTORY AREA OF BUDAPEST IN 1955.



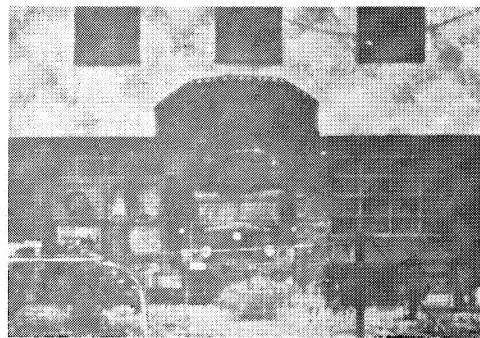
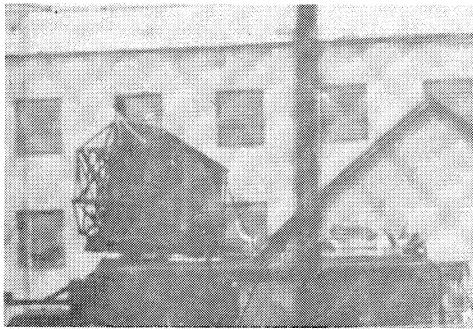
SIDE VIEW

FRONT VIEW

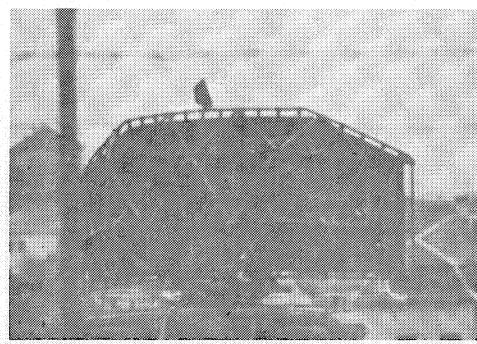


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BUD SLICE B



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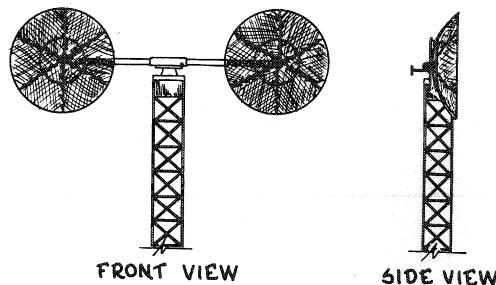
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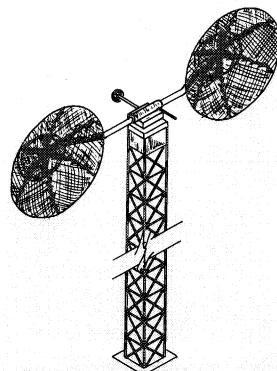
BUG EARS

BUG EARS IS A CODE NAME GIVEN TO MICROWAVE
COMMUNICATION ANTENNAS OBSERVED IN HUNGARY.
IT HAS BEEN SEEN MOUNTED ON A BUILDING AND
ALSO ON TRUCKS.



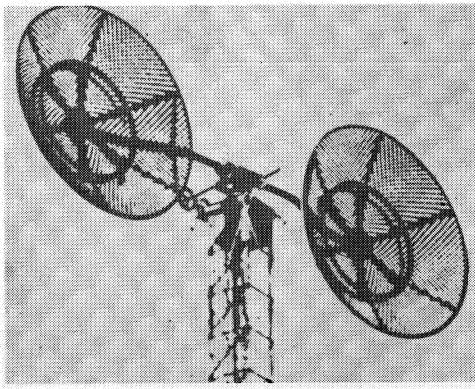
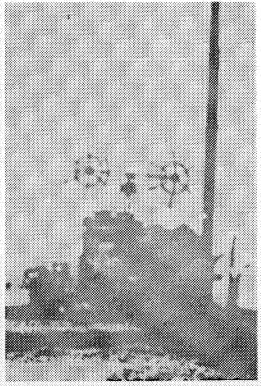
FRONT VIEW

SIDE VIEW



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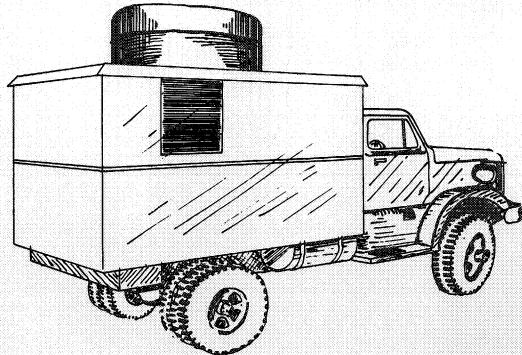
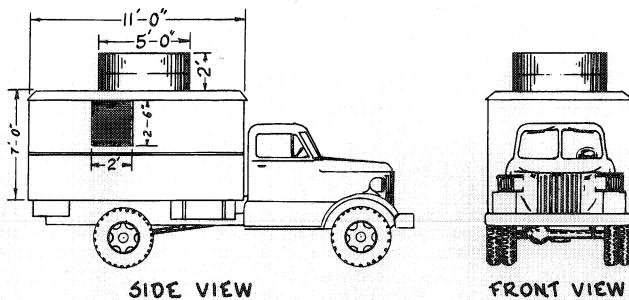
BUG EARS



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CHEESE BRICK

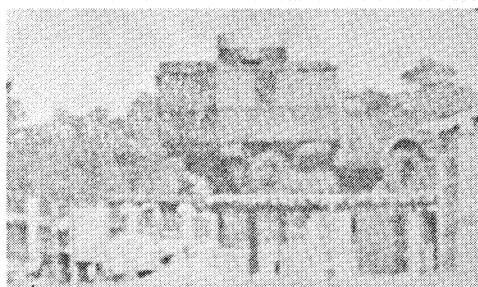
THIS DEVICE HAS BEEN SEEN IN EAST GERMANY IN CLOSE PROXIMITY TO BOX BRICK INSTALLATIONS. IT DIFFERS FROM THE BOX BRICK IN HAVING A CYLINDRICALLY SHAPED PROTRUSION RESEMBLING A RADOME EXTENDING ABOVE THE TOP OF A VAN MOUNTED ON A TRUCK. RELIABLE COLLATERAL INFORMATION STRONGLY INDICATES THAT CHEESE BRICK HOUSES THE SPB-I WHICH IS AN X-BAND JAMMING SYSTEM.



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CHEESE BRICK



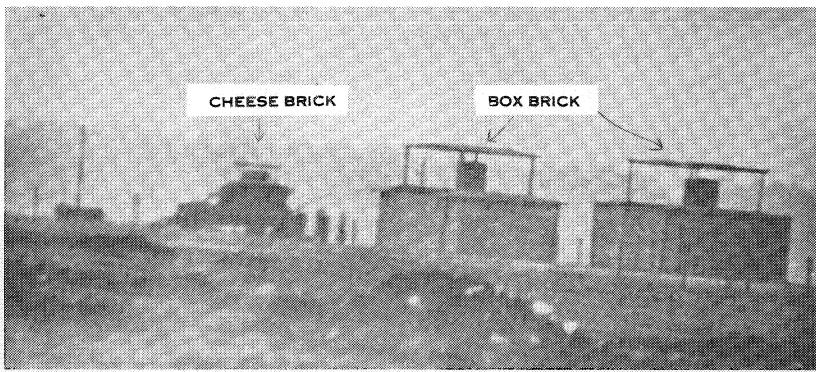
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CHEESE BRICK RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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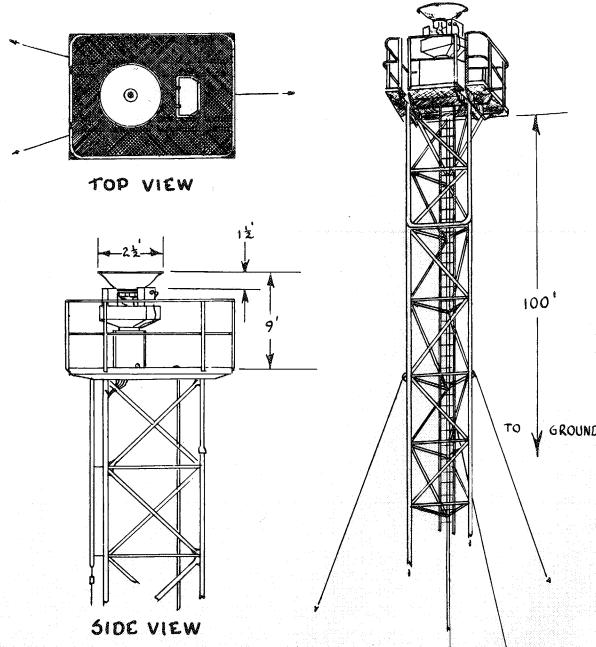
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CPS-9 TYPE

THE CPS-9 TYPE RADAR IS IDENTICAL IN APPEARANCE TO THE US CPS-9. IT HAS BEEN PHOTOGRAPHED IN EAST GERMANY AND IS BELIEVED TO BE USED IN SPOTTING CLOUDS AND WEATHER DISTURBANCES FOR WEATHER FORECASTING.

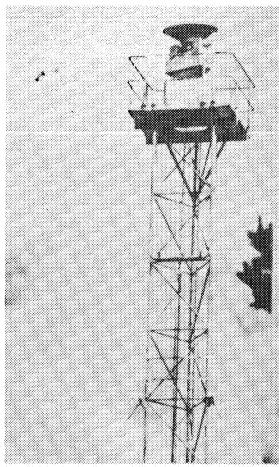
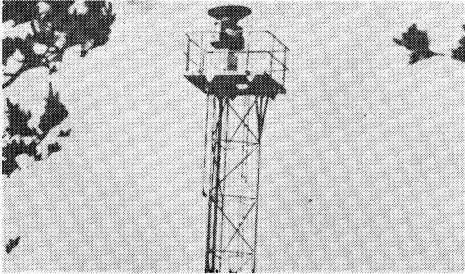


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CPS-9 TYPE



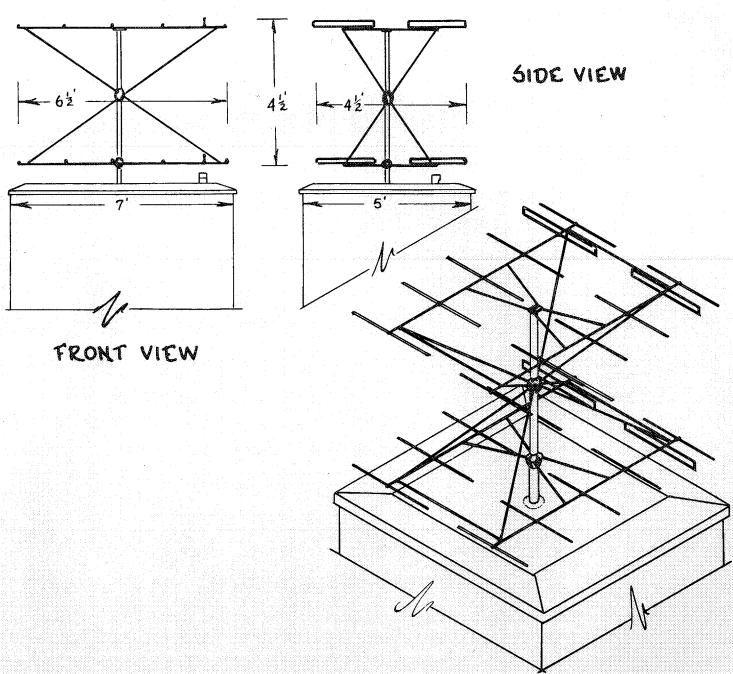
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CROSS FORK

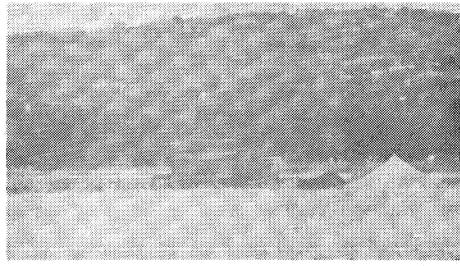
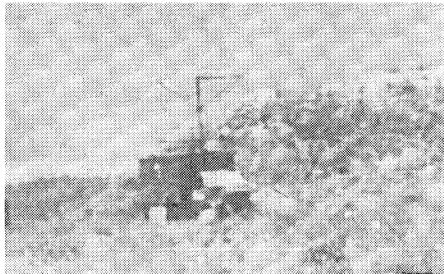
THE CROSS FORK IS VERY SIMILAR IN APPEARANCE TO THE US RADAR SCR-602 AND THE BRITISH AA-4 MK 2 AND IS BELIEVED TO HAVE ALMOST IDENTICAL CHARACTERISTICS. IT IS USED PRIMARILY AS AN ACQUISITION SET FOR GUN LAYING INSTALLATIONS. THIS RADAR IS USUALLY SEEN AS A MOBILE INSTALLATION.



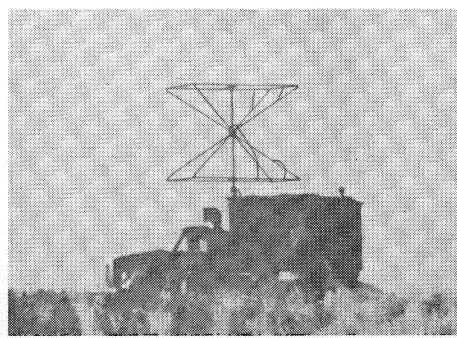
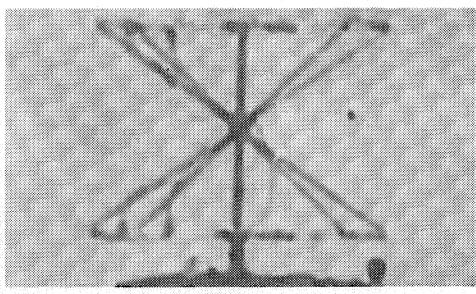
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CROSS FORK



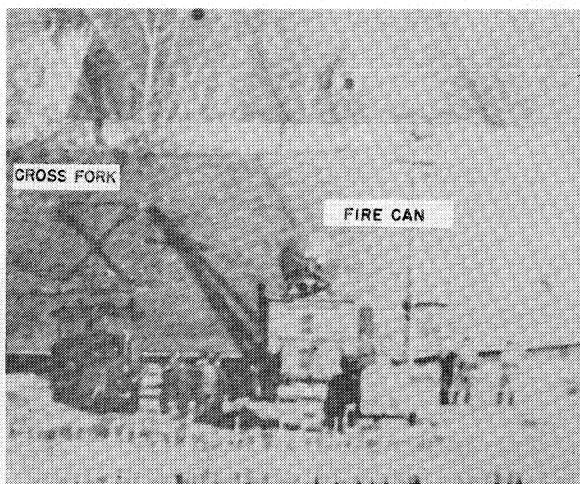
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CROSS FORK RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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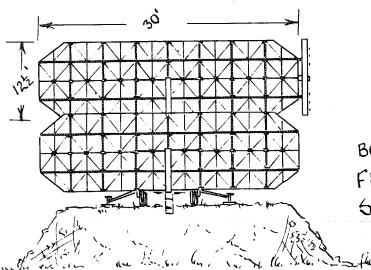
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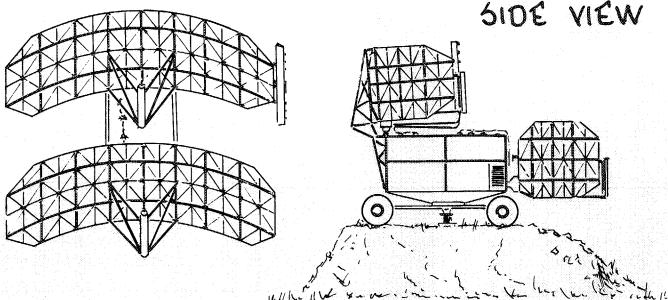
CROSS OUT

CROSS OUT IS A MODIFICATION OF THE BIG MESH RADAR. THIS MODIFICATION CONSISTS OF REPOSITIONING THE SLANT ANTENNA INTO THE HORIZONTAL PLANE AND MOUNTING IT ON THE VAN ABOVE AND BEHIND THE ORIGINAL HORIZONTAL REFLECTOR. THIS MODIFICATION IS SIMILAR TO THAT MADE TO THE TOKEN IN PRODUCING THE STRIKE OUT. END BOX HAS BEEN SEEN ATTACHED TO THE END OF THE LOWER REFLECTOR AT SOME LOCATIONS AND AT LEAST ONCE TO THE END OF THE UPPER REFLECTOR. NO WITCH FOUR ARRAY HAS BEEN REPORTED ATTACHED TO ANY CROSS OUT. CROSS OUT RADARS HAVE ALSO BEEN OBSERVED MOUNTED ON BRICK TOWERS APPROXIMATELY 40 FEET HIGH.



FRONT VIEW

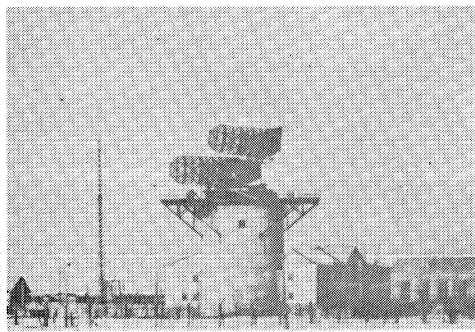
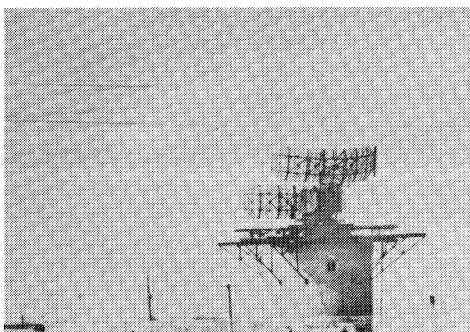
BODY - 14' X 16' X 7'
FEEDER - 8' FROM ANTENNA
STOVE PIPE 9' LONG



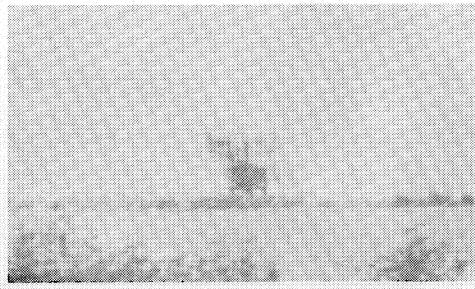
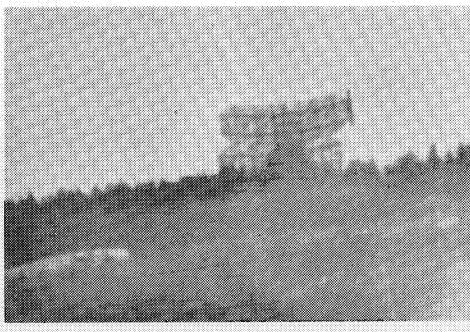
SIDE VIEW

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CROSS OUT



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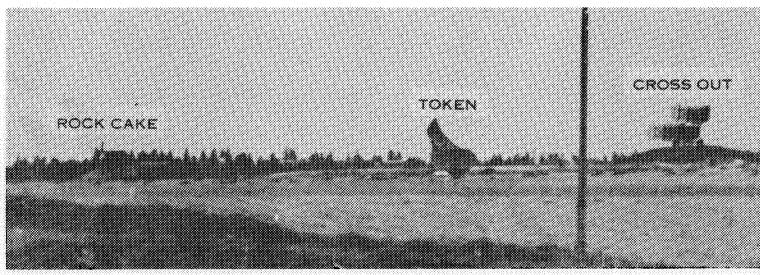
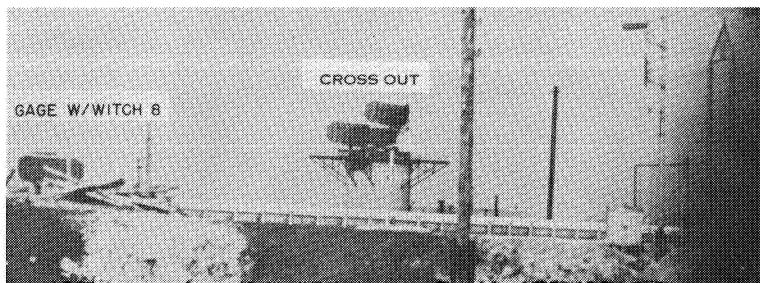
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CROSS OUT RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



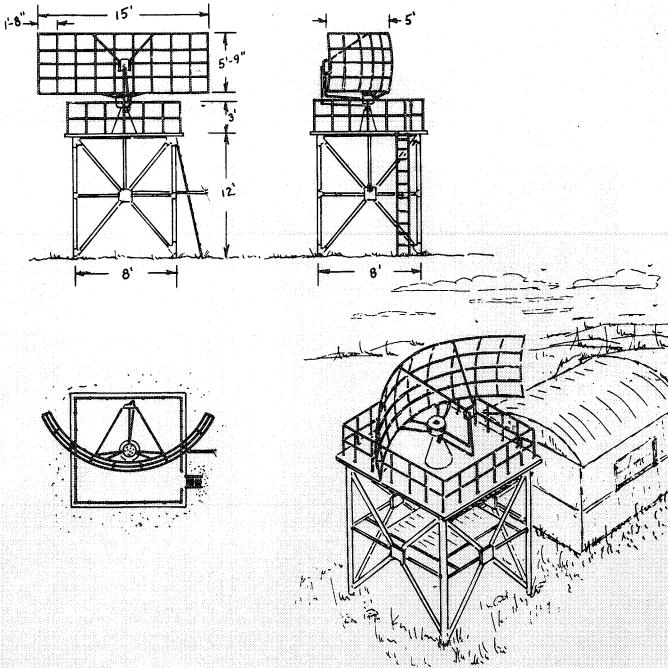
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CROSS SLOT

CROSS SLOT IS A NEW EW RADAR OF CHINESE COMMUNIST MANUFACTURE. IT IS MOUNTED ON A TOWER AND UTILIZES A SUSPENDED FEED POINT WITH WAVE GUIDE FEED. IT IS SUSPECTED THAT THIS EQUIPMENT IS CAPABLE OF MANUAL ROTATION AND THE ROTATION RATES LISTED MAY BE THE RESULT OF MANUAL SCANNING RATHER THAN AUTOMATIC SCAN.

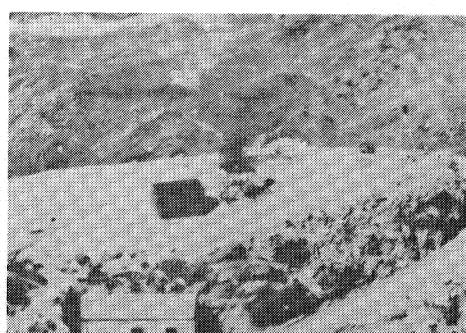
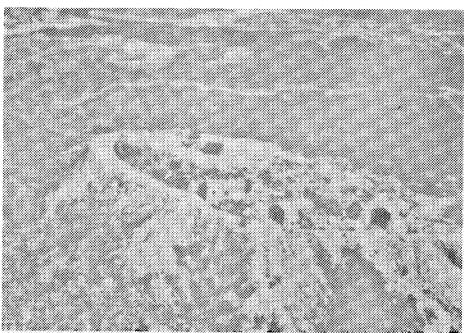


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CROSS SLOT



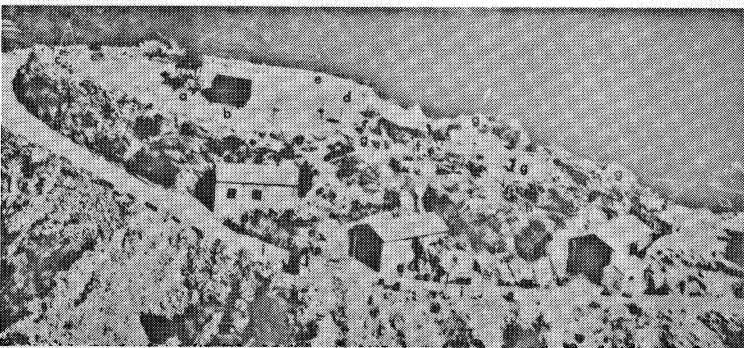
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KEY: (A) — NEW HORIZONTAL SEARCH TYPE RADAR ANTENNA WHICH HAS BEEN ASSEMBLED AND PLACED ON CONICAL PEDESTAL. (B) — PREFABRICATED RADAR SHACK. (C) — PROBABLE UHF OR VHF ANTENNA ON TRIPOD. ANTENNA APPEARS TO BE SAME AS TYPE USED WITH TOKEN. (D) — SERIES OF UNIDENTIFIED STICK MASTS. (E) — INTERNATIONAL ROAD SIGNS. (F) — PYRAMIDAL TENT. (G) — AA WEAPONS (TOTAL OF 4). (H) — NEW GUN POSITION, APPEARS UNOCCUPIED. (I) — OIL DRUMS (TOTAL OF 38). 13 FEB 58. ENCL. (I).

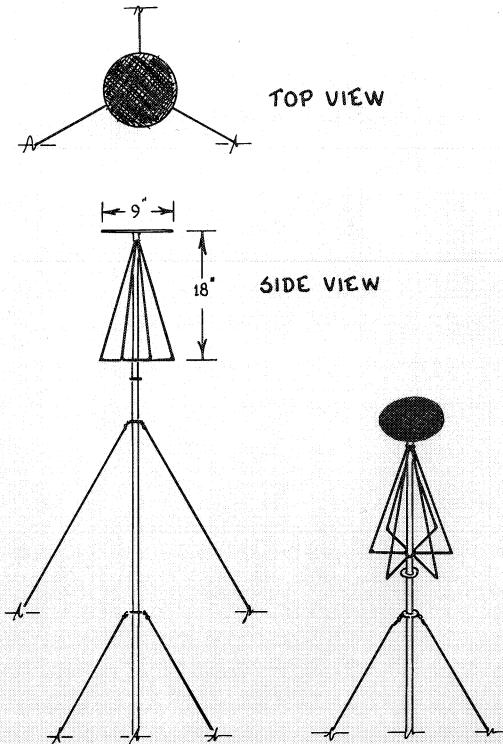


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DISCONE

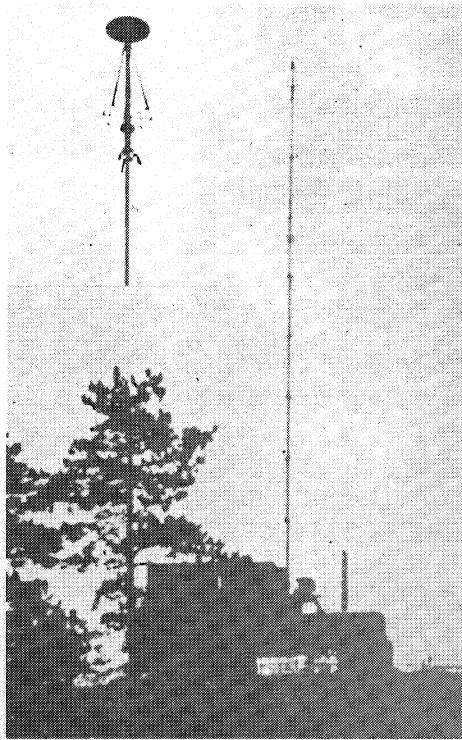
VHF DISC CONE ANTENNAS HAVE BEEN OBSERVED IN USE WITH SOVIET AIR FORCE UNITS THROUGHOUT WESTERN USSR AND THE EUROPEAN SATELLITES SINCE LATE 1953. THESE ARRAYS HAVE BEEN REPORTED AS BOTH FIXED AND MOBILE INSTALLATIONS AND ARE BELIEVED TO BE ASSOCIATED WITH SOVIET GROUND VHF TRANSMITTING AND RECEIVING EQUIPMENT FOR AIR-TO-GROUND COMMUNICATION.



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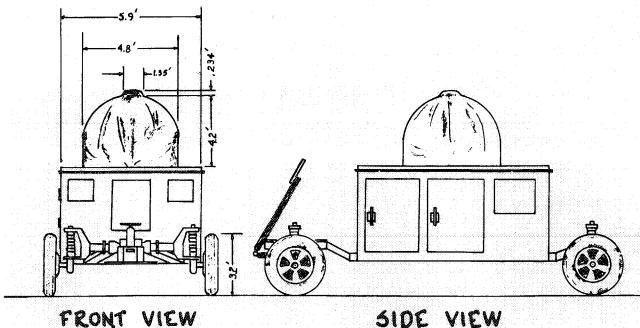
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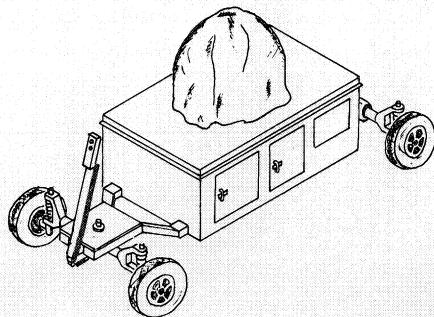
DOME GLASS

THE DOME GLASS RADAR WAS FIRST SIGHTED IN CZECHOSLOVAKIA IN 1955 AND HAS BEEN IDENTIFIED AS A LANDBASED FIRE CONTROL RADAR. IT IS A MOBILE RADAR AND BELIEVED TO BE OF CZECH DESIGN AND MANUFACTURE. TWO SCAN MODES ARE PRESENT. THE HIGHER PRF EXHIBITS 24.5 CPS SUGGESTIVE OF CONICAL SCAN. THE LOWER PRF HAS A SCAN RATE OF 2.1 SECONDS BETWEEN PULSES.



FRONT VIEW

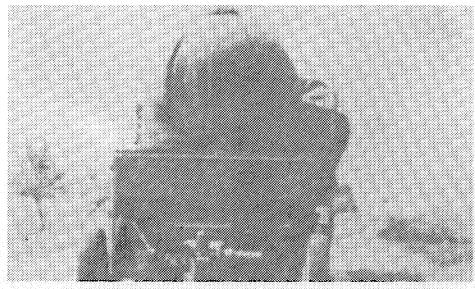
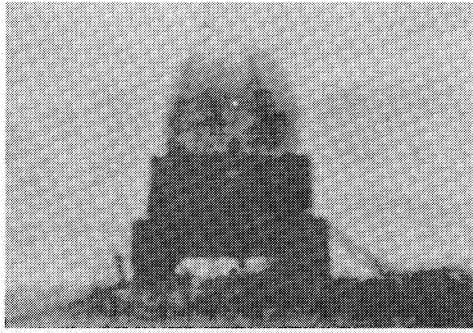
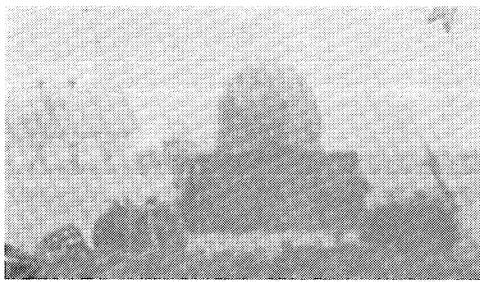
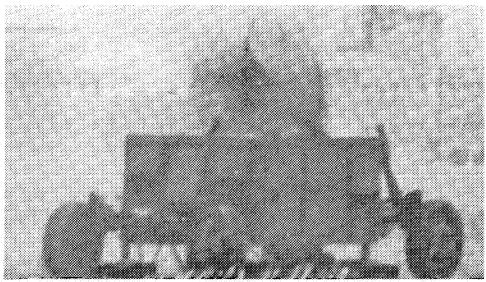
SIDE VIEW



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DOME GLASS**

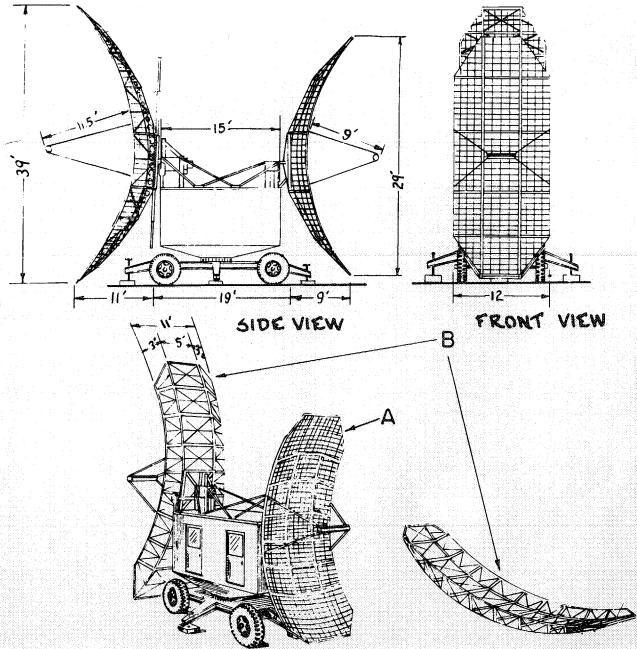


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DOUBLE TRESPASS

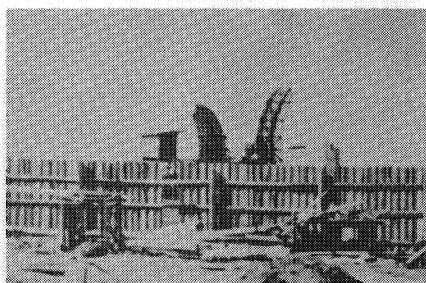
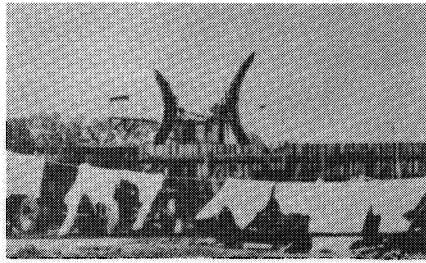
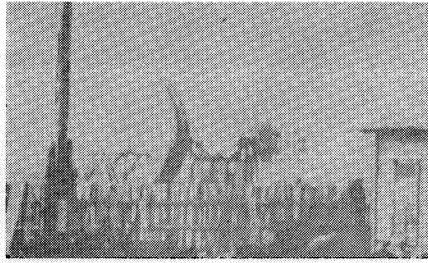
THE DOUBLE TRESPASS TYPE RADAR HAS BEEN SEEN AT ONLY ONE LOCATION IN THE SOVIET UNION AND IS BELIEVED TO BE EITHER AN EXPERIMENTAL TYPE OR A DEVICE FOR TESTING ANTENNA CONFIGURATIONS. IT HAS OCCURRED IN TWO DIFFERENT CONFIGURATIONS, ONE WITH TWO BACK-TO-BACK VERTICAL ANTENNAS, AND THE OTHER WITH TWO BACK-TO-BACK ANTENNAS, ONE HORIZONTAL AND THE OTHER VERTICAL. THESE BACK-TO-BACK ANTENNAS ARE SOMETIMES TWO IDENTICAL ANTENNAS AND SOMETIMES TWO ANTENNAS OF DIFFERENT SIZE.



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DOUBLE TRESPASS



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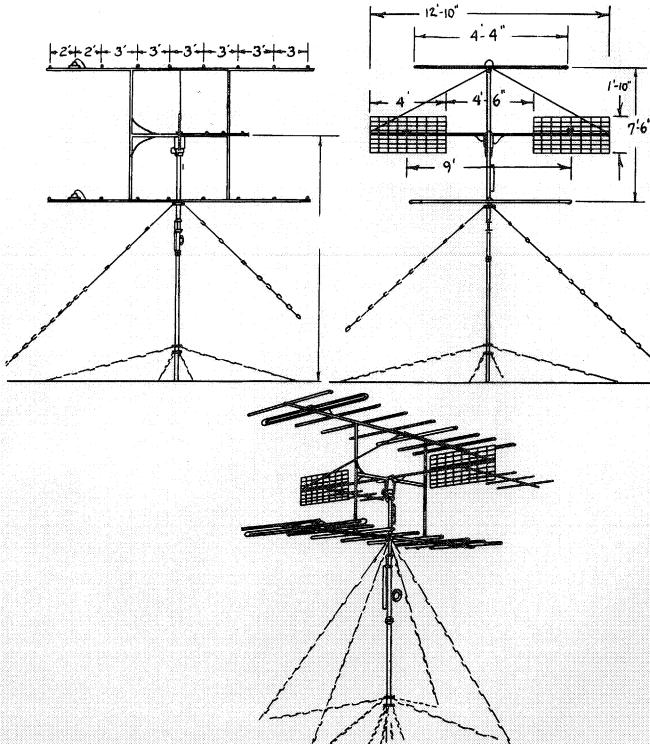
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DUMBO

(ALSO KNOWN AS P-3)

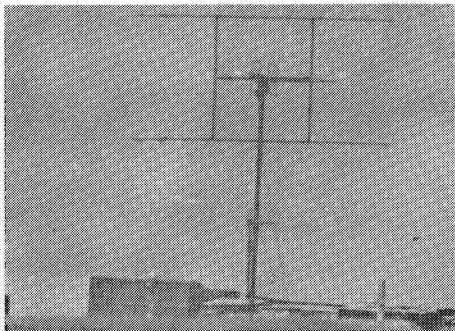
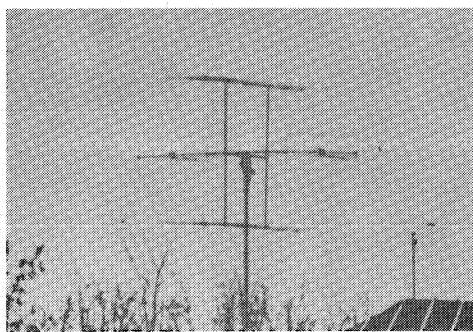
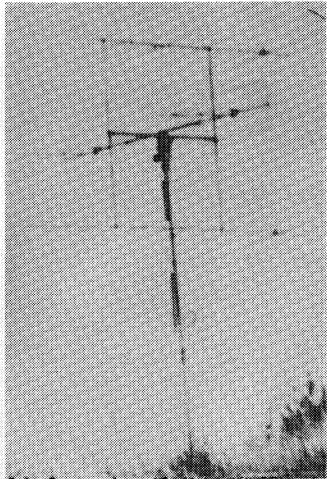
THE DUMBO IS A METRIC RADAR WHICH AUGMENTED THE EARLIER RUS II. IT IS USED PRIMARILY AS AN EW RADAR AND AS A GAP-FILLER. THIS IS A STANDARD SOVIET RADAR AND HAS BEEN WIDELY OBSERVED AND INTERCEPTED THROUGHOUT THE SOVIET BLOC. THE DISTINGUISHING PHYSICAL CHARACTERISTIC OF THIS RADAR IS THE TWO SCREENS WHICH RADIATE AT 90 DEGREES FROM THE MAIN FOUR, SEVEN ELEMENT ARRAY.



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DUMBO



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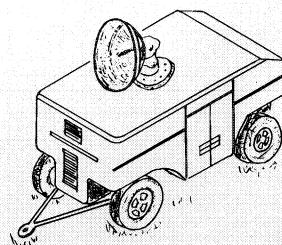
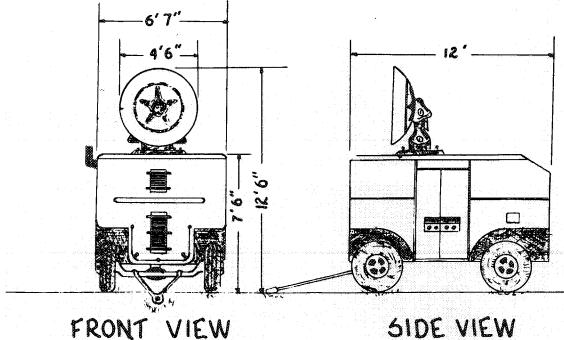
FIRE CAN

(ALSO KNOWN AS SON 9)

THE FIRE CAN GL RADAR IS SIMILAR TO BOTH THE WHIFF AND FIRE DISH. IT IS DISTINGUISHED BY THE SIZE OF ITS VAN AND ITS ANTENNA. THE FOLLOWING TABLE SHOWS THE COMPARATIVE DIMENSIONS OF THE FIRE CAN, WHIFF AND FIRE DISH.

	WHIFF	FIRE CAN	FIRE DISH
VAN LENGTH	21'	12'	16'6"
VAN WIDTH	6'9"	6'7"	6'9"
VAN HEIGHT (WITH ANTENNA)	17'7"	12'6"	16'6"
VAN HEIGHT (WITHOUT ANTENNA)	10'6"	7'6"	10'
DIA. OF REFLECTOR	6'	4'6"	6'

THE FIRE CAN REFLECTOR IS SOLID AS COMPARED WITH THE PERFORATED REFLECTORS ON THE WHIFF AND FIRE DISH.

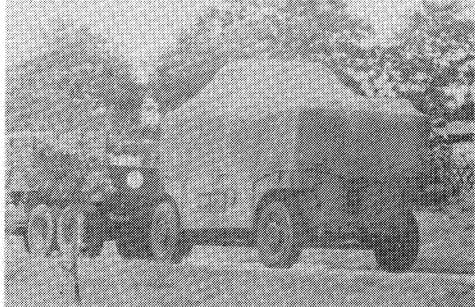
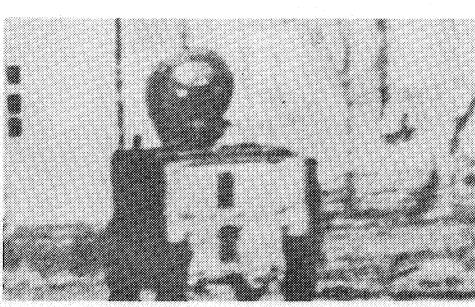
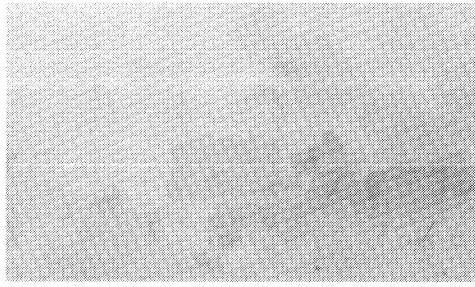
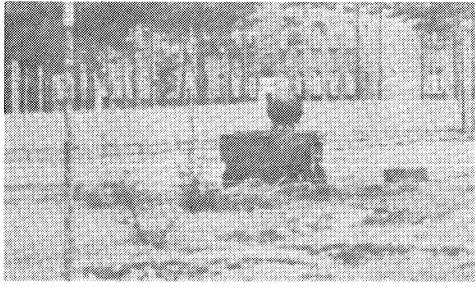


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FIRE CAN



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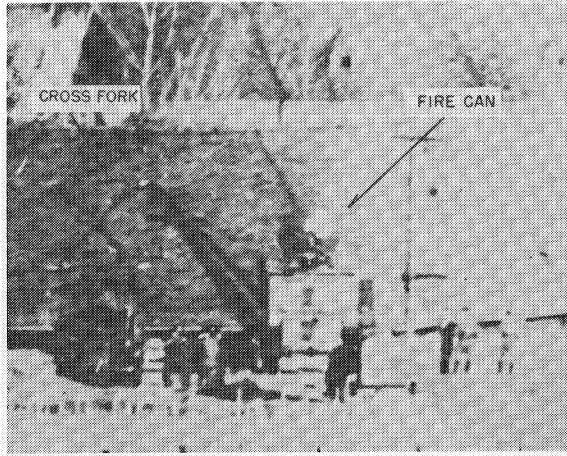
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FIRE CAN RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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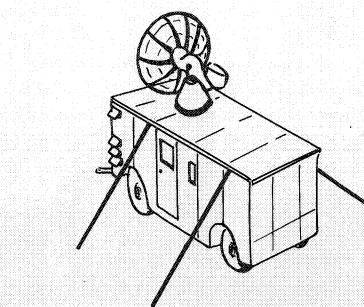
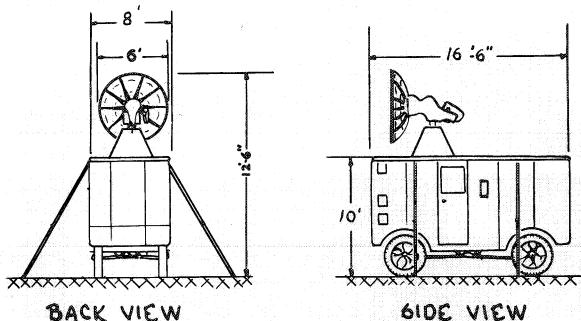
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FIRE DISH

(ALSO KNOWN AS DRAVA)

THE FIRE DISH IS A GL RADAR SIMILAR IN APPEARANCE TO THE WHIFF AND FIRE CAN. THIS RADAR HAS BEEN SEEN ONLY IN HUNGARY, CLOSE TO AN ELECTRONICS PLANT, AND MAY BE AN EXPERIMENTAL TYPE. THE FIRE DISH IS CHARACTERIZED BY THE SIZE AND SHAPE OF ITS VAN AND ANTENNA REFLECTOR. THIS REFLECTOR HAS TWELVE SOLID SPOKES EXTENDING FROM AN INNER SOLID CIRCULAR AREA OUT TO THE OUTER EDGE OF THE REFLECTOR AND FOUR RINGS IN ADDITION TO THE WIDER SOLID CIRCULAR AREA ON WHICH THE WAVE GUIDE IS MOUNTED. THE FOLLOWING TABLE SHOWS THE COMPARATIVE DIMENSIONS TO THE FIRE DISH, WHIFF AND FIRE CAN.

	WHIFF	FIRE CAN	FIRE DISH
VAN LENGTH	21'	12'	16'6"
VAN WIDTH	6'9"	6'9"	6'9"
VAN HEIGHT (WITH ANTENNA)	17'7"	12'6"	16'6"
VAN HEIGHT (WITHOUT ANTENNA)	10'6"	7'6"	10'
DIA OF REFLECTOR	6'	4'6"	6'



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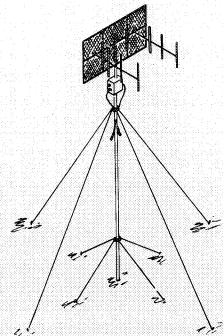
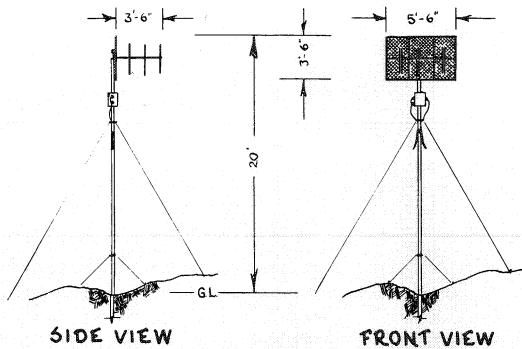
FIRE DISH



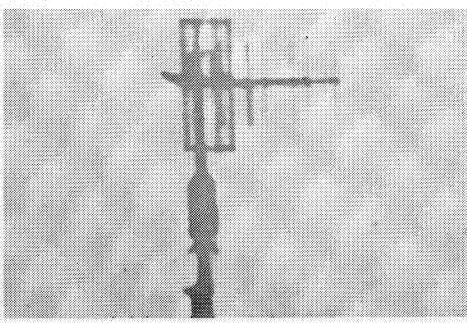
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FISH NET

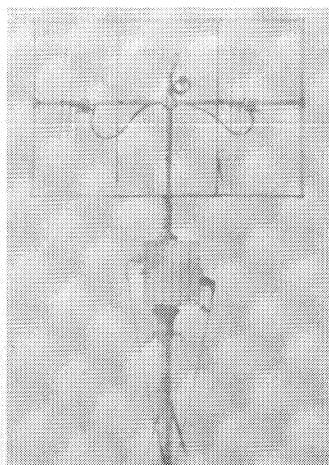
THE FISH NET IS THE STANDARD SOVIET IFF WHICH HAS BEEN SEEN IN BOTH THE EUROPEAN AND FAR EASTERN AREAS. IT IS A SEMI-FIXED INSTALLATION CONSISTING OF TWO YAGI ARRAYS RADIATING FROM THE CENTER OF A SCREEN REFLECTOR. IT IS ALMOST ALWAYS ASSOCIATED WITH SOME OTHER RADAR AS PART OF AN EW OR GCI SITE.



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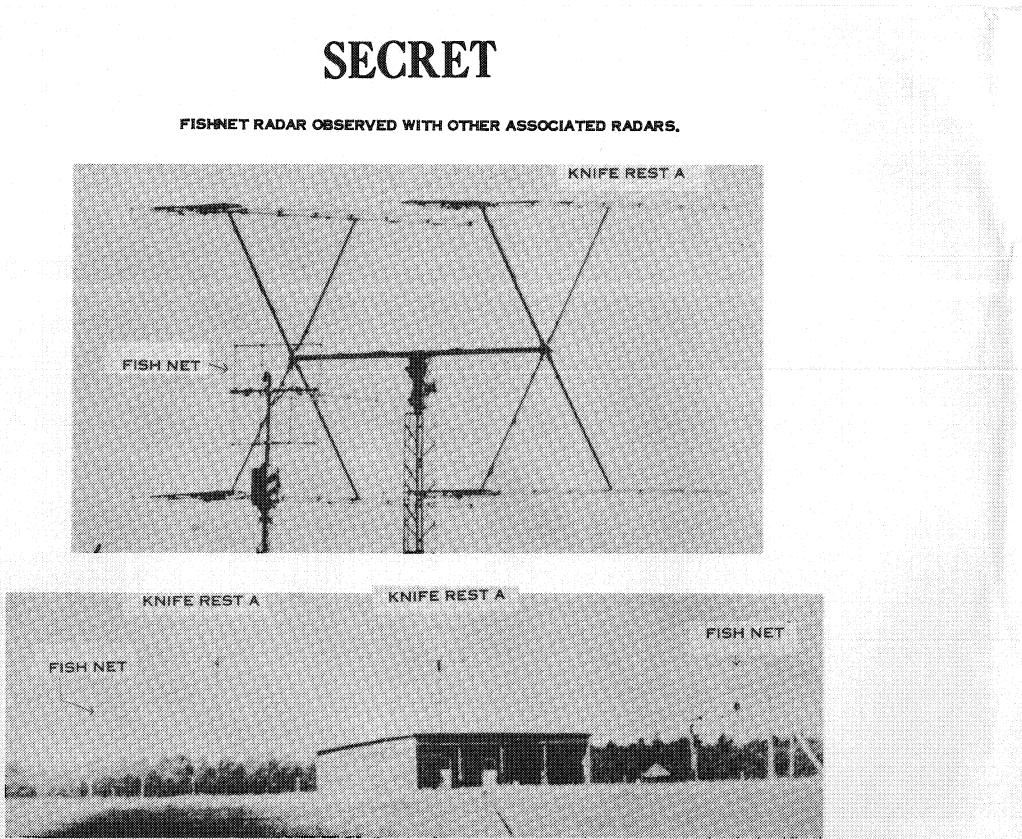
FISHNET



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FISHNET RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.

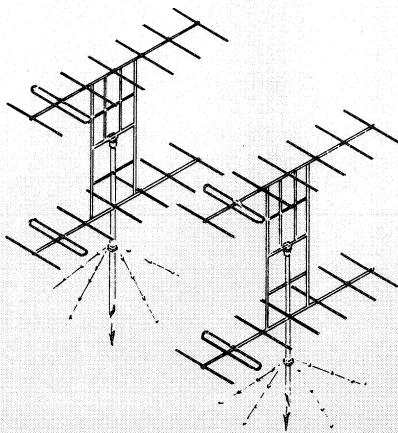
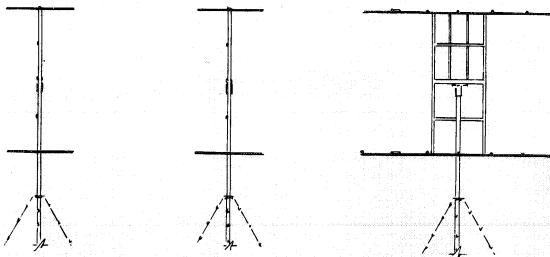


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FORK REST

FORK REST APPEARS TO BE A MODIFIED KNIFE REST. THE X-TYPE SUPPORT FOR THE TWO STACKED ARRAYS OF KNIFE REST HAVE BEEN REPLACED WITH A VERTICAL AND HORIZONTAL TYPE BRACING. ALTHOUGH INTERCEPTS HAVE NOT BEEN ASSOCIATED WITH FORK REST, IT IS BELIEVED THAT THIS RADAR OPERATES IN THE 70 TO 80 MC BAND.



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FORK REST



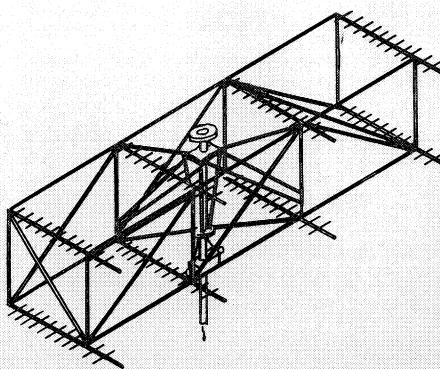
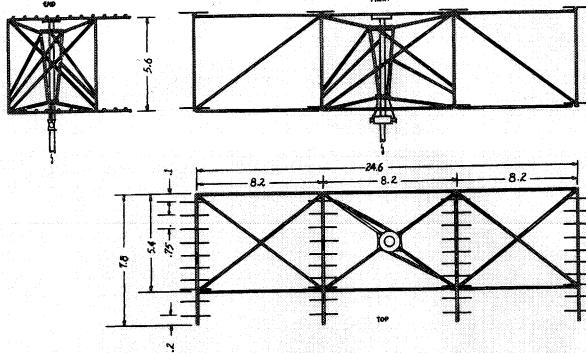
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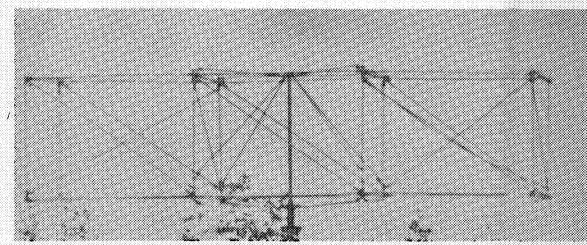
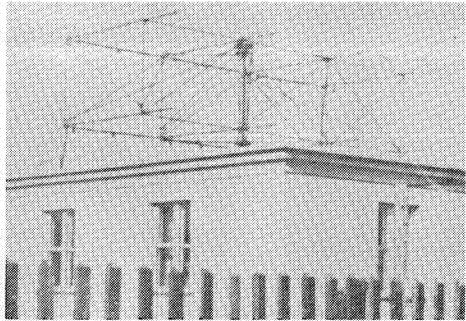
FOUR STACK

THE FOUR STACK HAS BEEN SEEN AT AIRFIELDS IN THE SOVIET BLOC AND IS BELIEVED TO BE PART OF A LANDING SYSTEM. THIS IS A FIXED INSTALLATION AND IS DISTINGUISHED BY HAVING EIGHT YAGI ARRAYS MOUNTED IN TWO BANKS OF FOUR. IT IS BELIEVED TO BE USED AS AN ACQUISITION RADAR FOR INSTRUMENT LANDING SYSTEMS.



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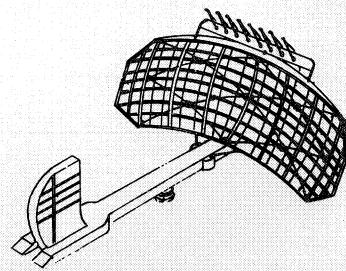
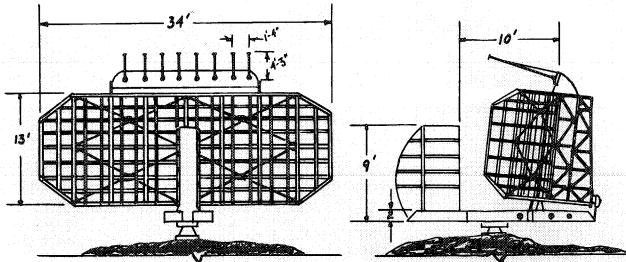
FOUR STACK



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GAGE

THE GAGE IS ONE OF THE FEW SOVIET RADARS WHICH OCCURS AS A FIXED INSTALLATION. THIS EW RADAR USUALLY APPEARS IN CONJUNCTION WITH PATTY CAKE HEIGHT-FINDER. THIS TYPE RADAR HAS APPEARED ONLY IN THE SOVIET UNION, PRIMARILY IN THE MOSCOW AREA. THIS RADAR HAS BEEN OBSERVED WITH AN EIGHT ROD CONFIGURATION NICKNAMED WITCH EIGHT MOUNTED ON TOP OF THE REFLECTOR.

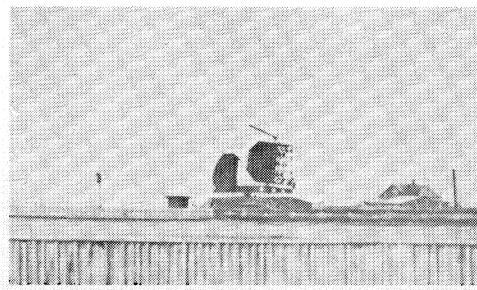
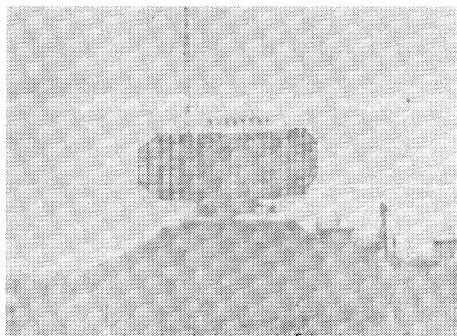


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GAGE

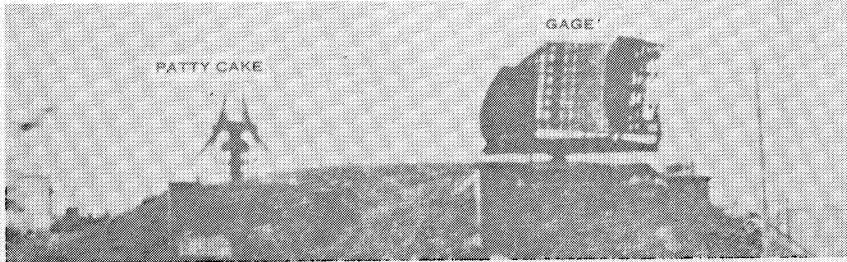
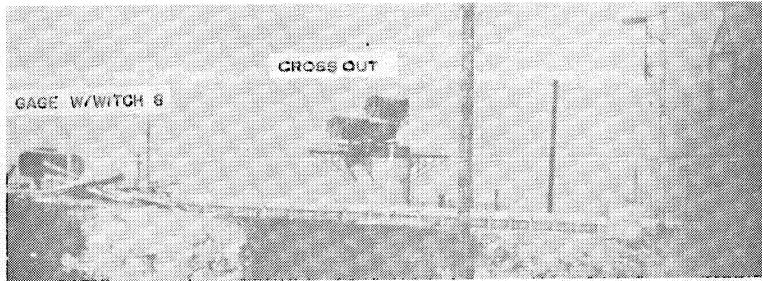


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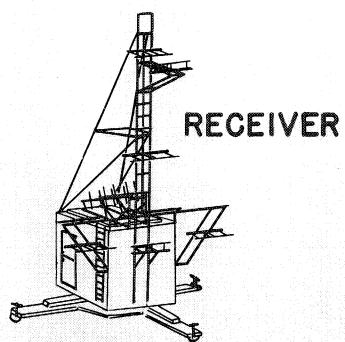
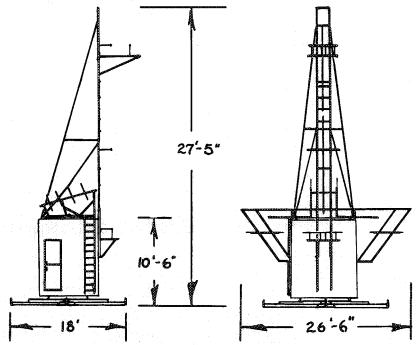
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GAGE RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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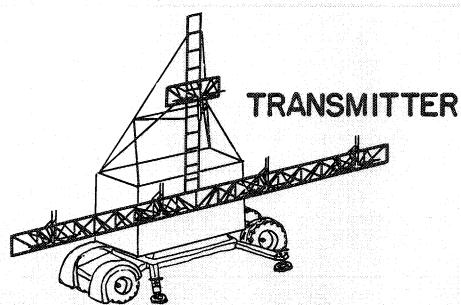
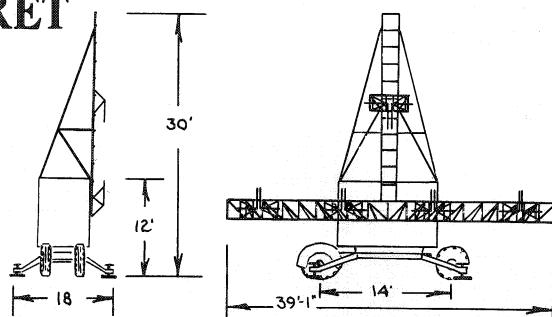
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GL MK 2

(ALSO KNOWN AS THE AA I MK II AND SON-2)

THE GL MK II, A BRITISH DESIGNED SET, IS USED FOR FIRE CONTROL OF HEAVY ANTI-AIRCRAFT GUNS. SEPARATE VANS ARE USED FOR THE TRANSMITTER AND RECEIVER OF THIS RADAR. THIS SET IS MOBILE AND APPEARS PRIMARY IN THE FAR EAST.

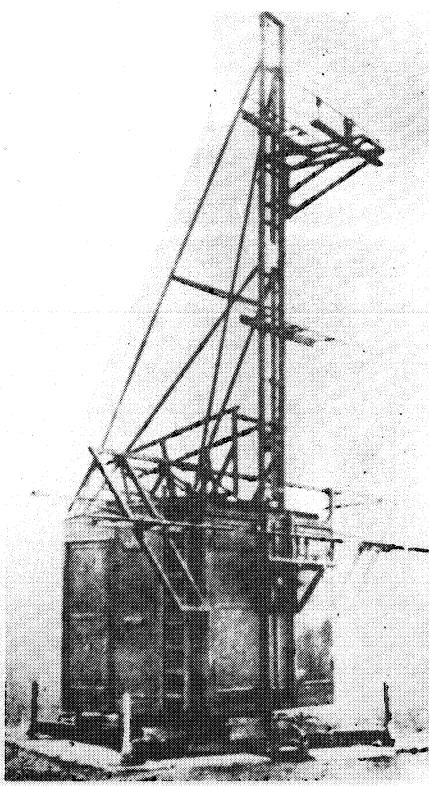
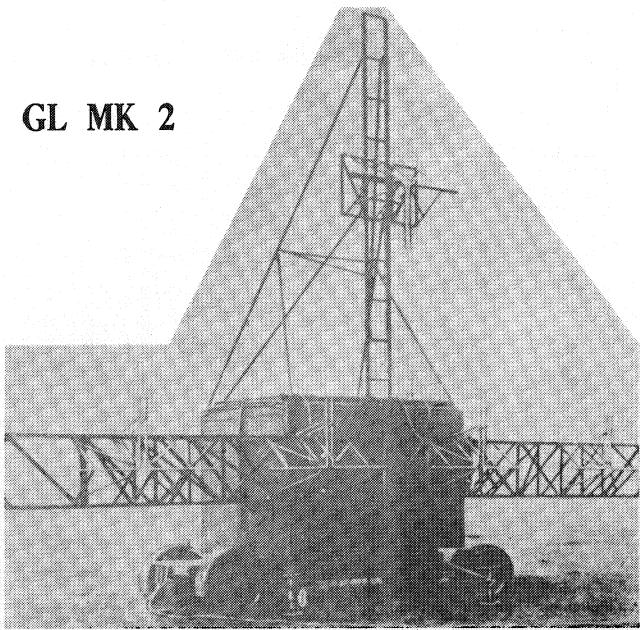


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GL MK 2



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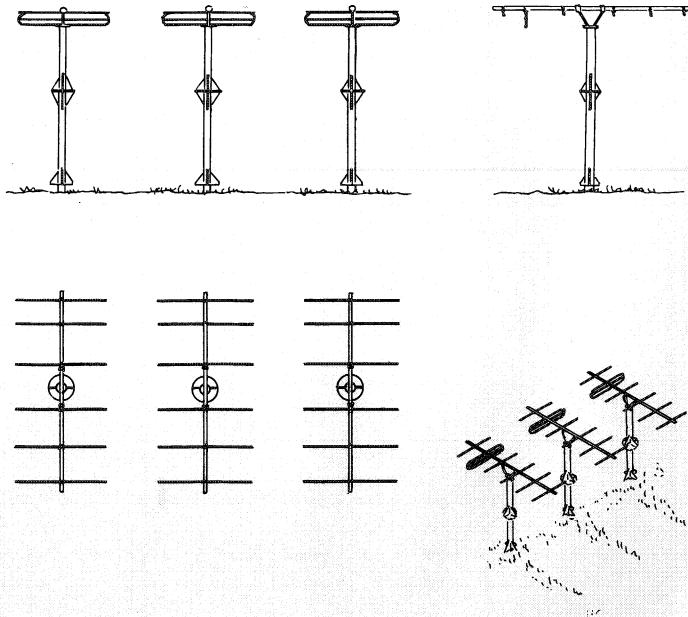
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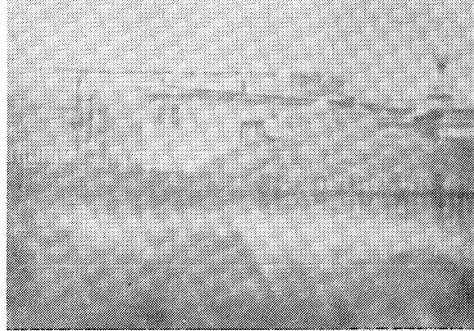
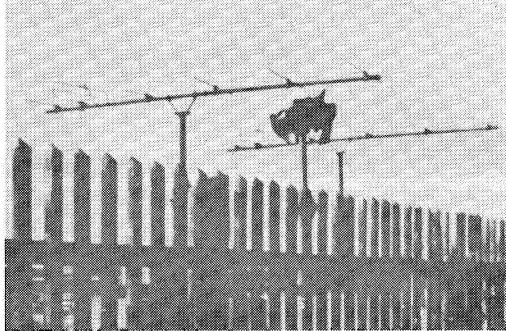
HOME GUIDE

HOME GUIDE IS A LOCALIZER FOR THE SOVIET ILS SYSTEM. IT HAS BEEN OBSERVED AT AIRFIELDS WITH FOUR STACK OR HOME RUN PRESENT.

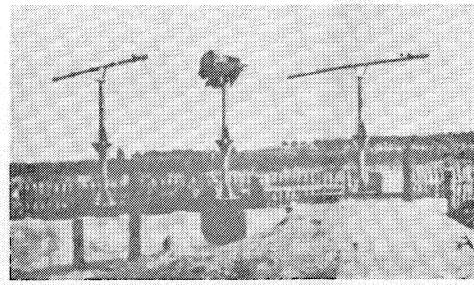
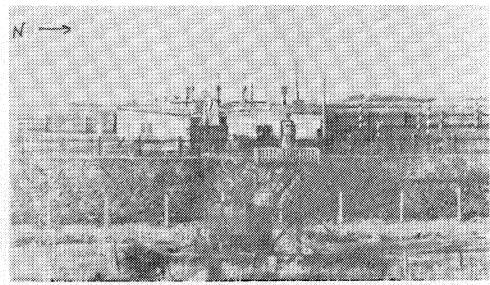


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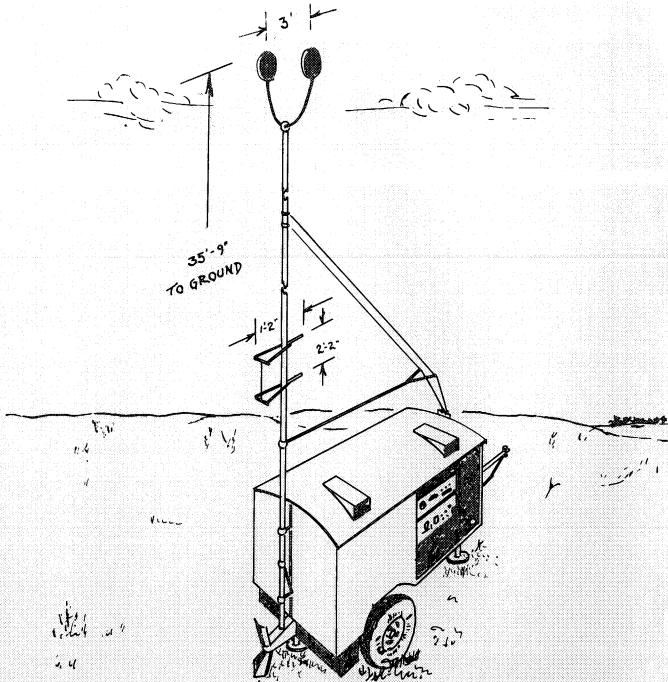
HOME GUIDE



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HOME RUN

HOME RUN IS THE GLIDE PATH TRANSMITTER PORTION OF THE SOVIET VHF INSTRUMENT LANDING SYSTEM (ILS) AND IS BELIEVED TO BE A COPY OF THE US ILS AN/CPN-7. IT HAS BEEN OBSERVED AT AIRFIELDS IN THE SOVIET UNION AND EAST GERMANY. THE INSTALLATION WAS MOBILE WHEN FIRST OBSERVED IN 1953, BUT MORE RECENT REPORTS INDICATE THAT IT HAS BEEN INSTALLED ON SMALL BUILDINGS

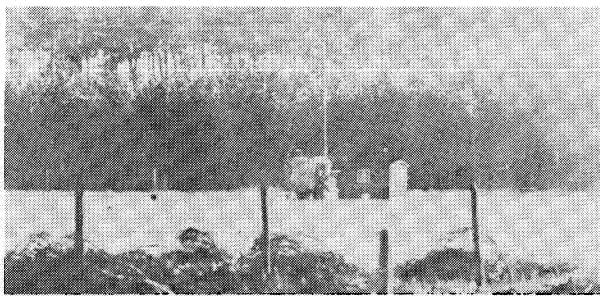


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HOME RUN



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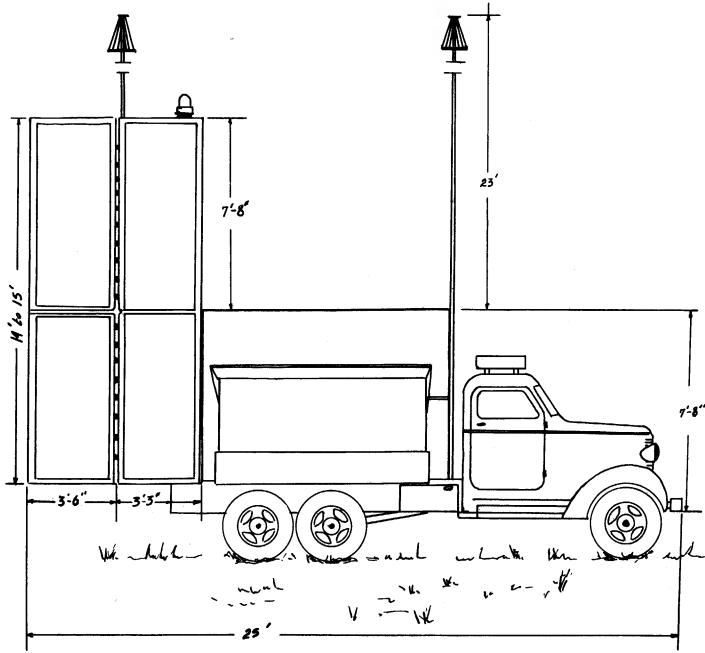
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HOME TALK

THE HOME TALK RADAR, USUALLY CO-LOCATED WITH A LONG EYE, IS SIMILAR IN APPEARANCE TO THE US GCA RADAR AN/MPN-1. IT IS THE PRECISION APPROACH CONTROL RADAR FOR A GCA LANDING SYSTEM. IT HAS BOTH A VERTICAL AND HORIZONTAL ANTENNA MOUNTED ON THE SAME MOBILE VAN AND PROVIDES DISTANCE, AZIMUTH AND ALTITUDE INFORMATION. ONE FULL 4-SWEEP SCAN CYCLE REQUIRES 1.86 TO 2.0 SECONDS AND ONE UNIDIRECTIONAL SCAN IN EITHER PLANE REQUIRES APPROXIMATELY 0.5 SECONDS.

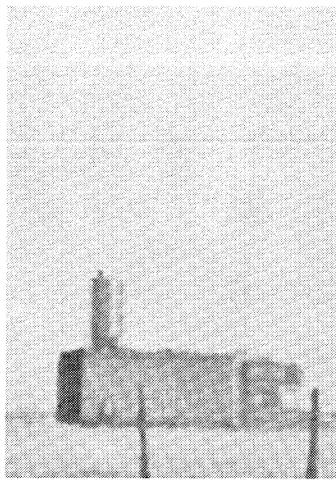
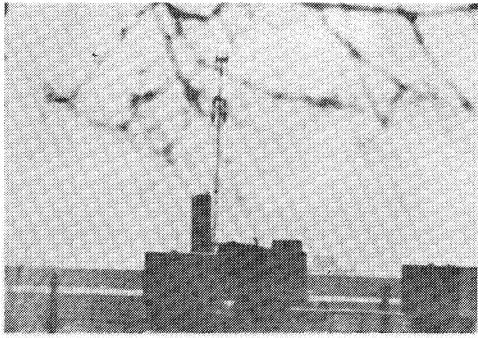


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HOME TALK

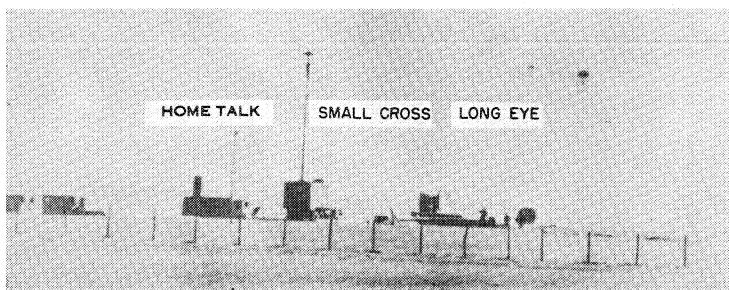


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HOME TALK RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.

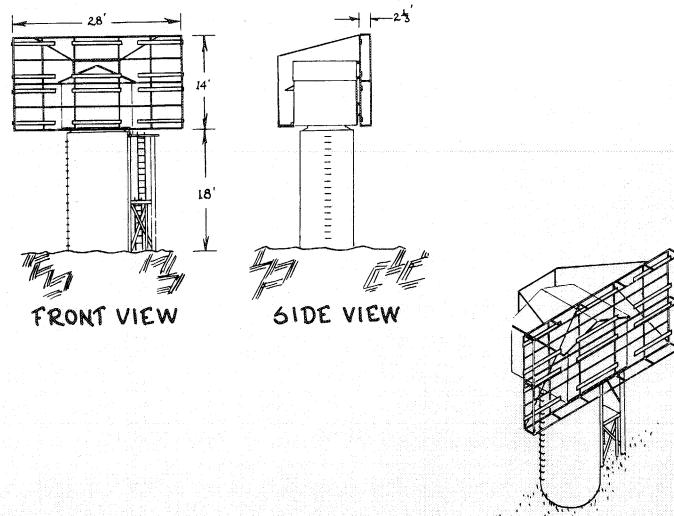


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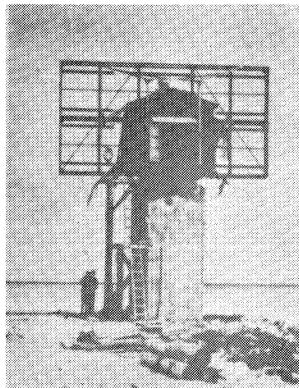
JAP MK I

THE JAP MK I RADAR IS AN OLD JAPANESE MODEL WHICH IS STILL INTERCEPTED IN THE CHINESE COMMUNIST AREA OF THE FAR EAST. IT OCCURS IN FIXED INSTALLATIONS AND IS USED FOR EARLY WARNING. THE JAP MK I IS USUALLY LOCATED ON A CONCRETE TOWER AND HAS A LARGE BED SPRING TYPE ANTENNA.

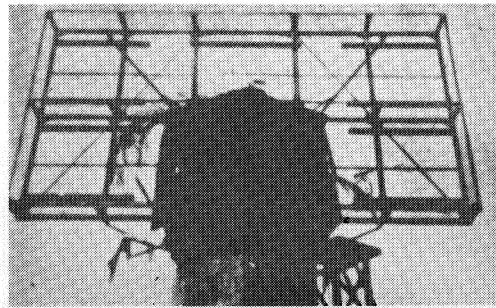
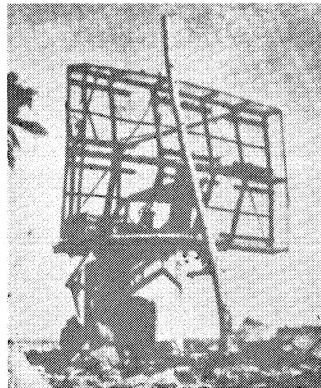


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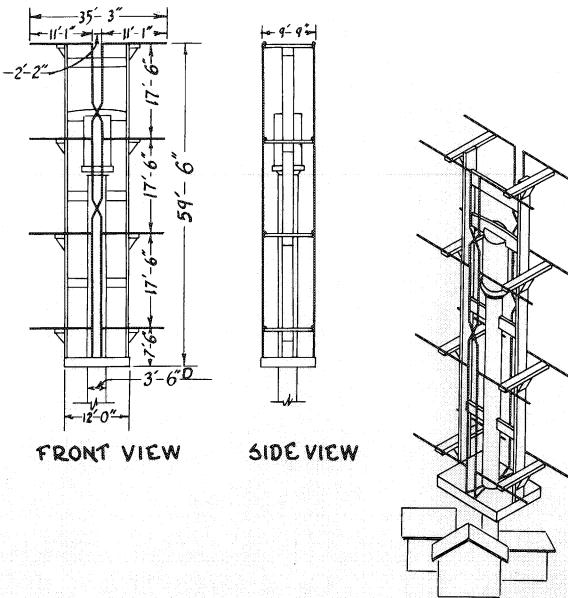
JAP MK I



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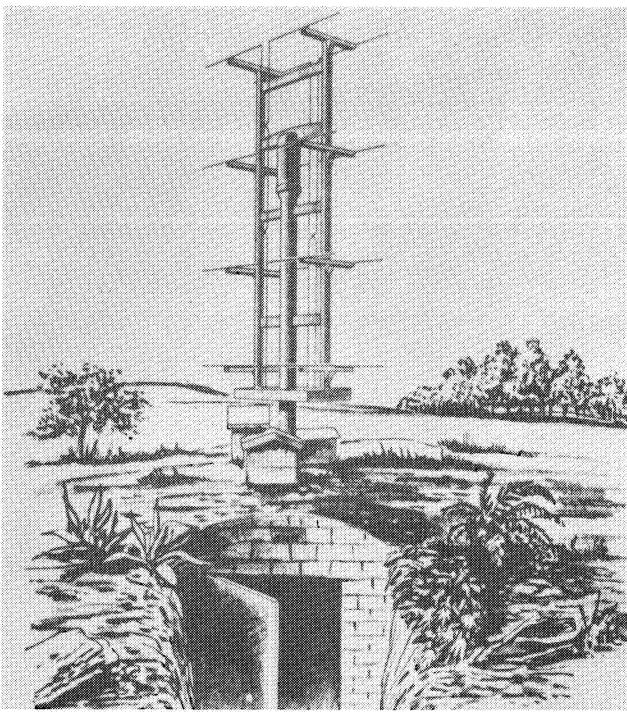
JAP MK I MOD 3

THE JAP MK I MOD 3 RADAR WAS MANUFACTURED IN JAPAN DURING WORLD WAR II AND CAPTURED BY THE CHINESE. IT IS A FIXED INSTALLATION EW RADAR. THE ANTENNA CONSISTS OF TWO HORIZONTALLY POLARIZED DIPOLES WITH REFLECTORS STACKED FOUR HIGH. THIS RADAR IS STILL INTERCEPTED IN THE COMMUNIST CHINA AREA OF THE FAR EAST.



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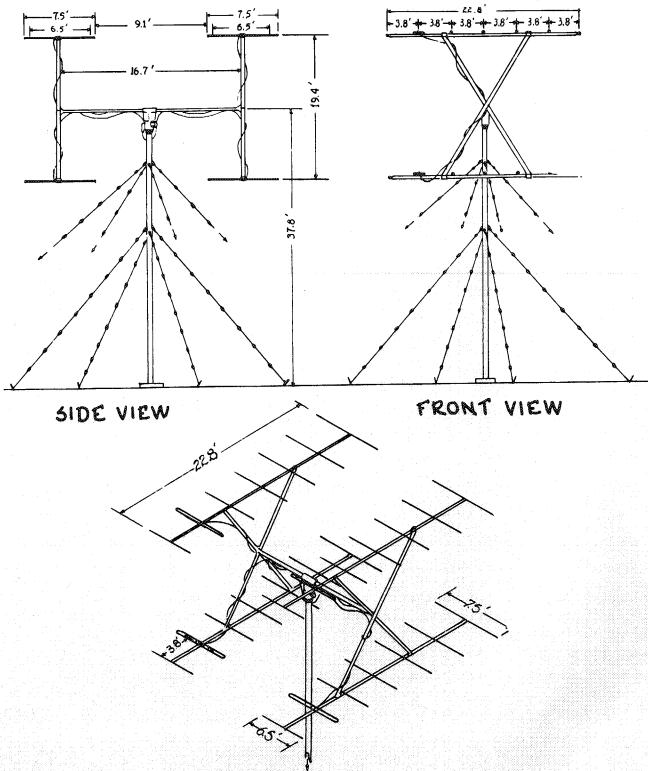
JAP MK I MOD 3

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KNIFEREST A

(ALSO KNOWN AS P-8)

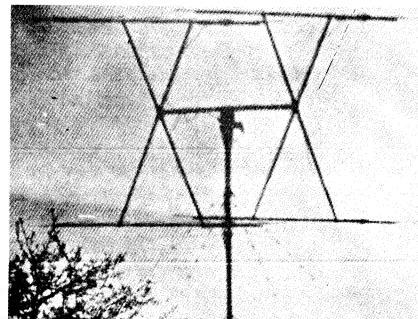
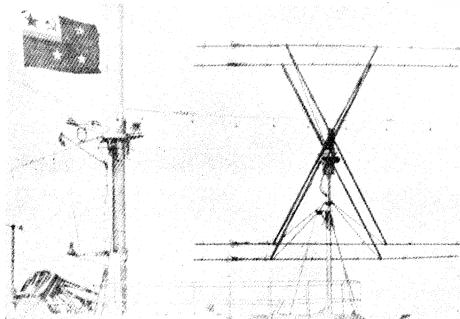
THE KNIFEREST A IS A METRIC RADAR WITH ELECTRONIC CHARACTERISTICS SIMILAR TO THE DUMBO AND RUS II RADARS, AND HAS FOUR, SEVEN ELEMENT ARRAYS. THIS RADAR DIFFERS FROM KNIFEREST B WHICH HAS FOUR, NINE ELEMENT ARRAYS. THIS RADAR FIRST APPEARED IN 1952 AND IS A STANDARD SOVIET EW AND GAP-FILLER.



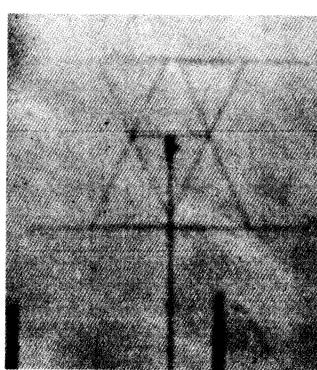
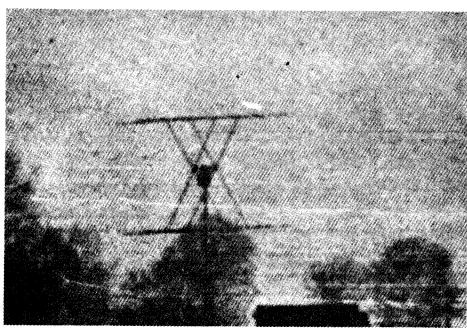
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KNIFEREST A



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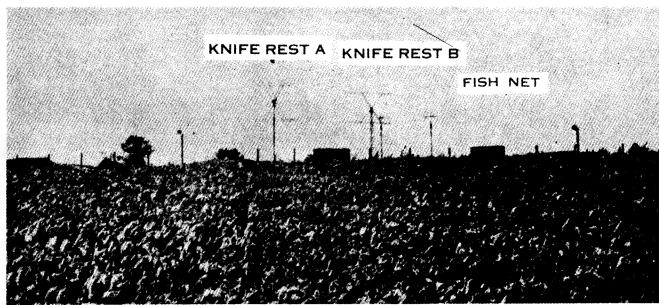
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KNIFEREST A RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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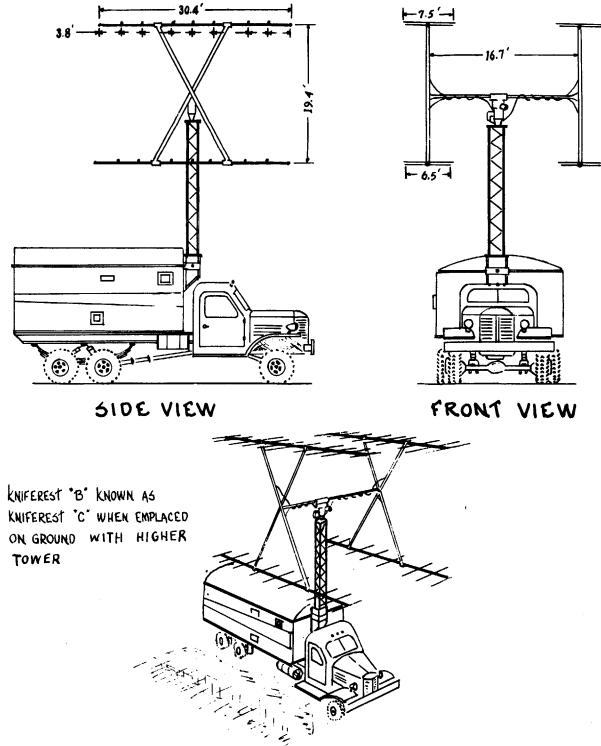
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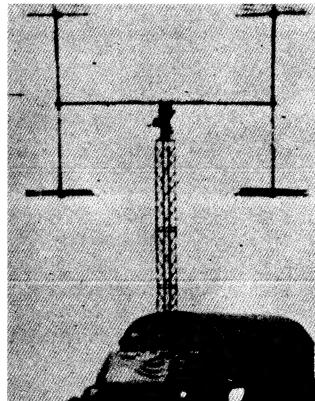
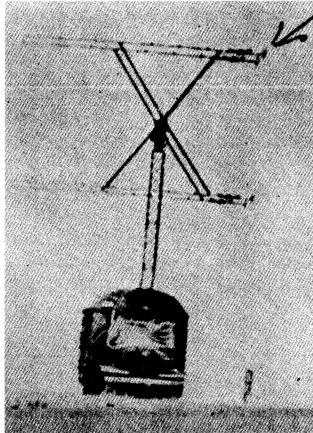
**KNIFEREST B
KNIFEREST C**

THE KNIFE REST B RADAR IS BELIEVED TO BE AN IMPROVED VERSION OF THE KNIFE REST A AND IS IDENTIFIED BY ITS FOUR, NINE ELEMENT YAGI ARRAY AND LATTICE TYPE TOWER. THE KNIFE REST A HAS A FOUR, SEVEN ELEMENT YAGI ARRAY.

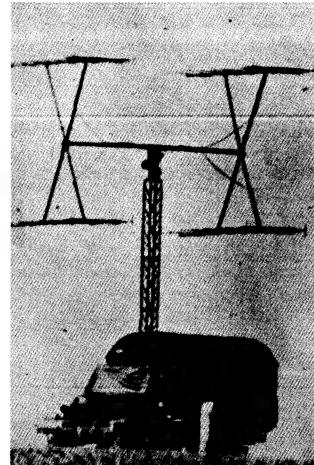
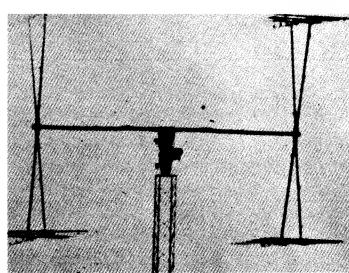
KNIFE REST B IS MOBILE AND HAS A MAST ABOUT 10 FEET HIGH. KNIFE REST C HAS THE SAME CONFIGURATION AS KNIFE REST B EXCEPT FOR BEING MOUNTED ON A MAST APPROXIMATELY 40 FEET HIGH, BOTH TYPES ARE GAP-FILLERS AND METRIC RADARS.



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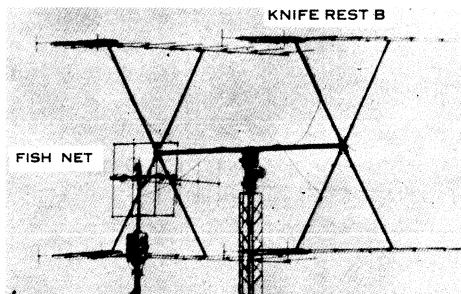


KNIFEREST B
KNIFEREST C

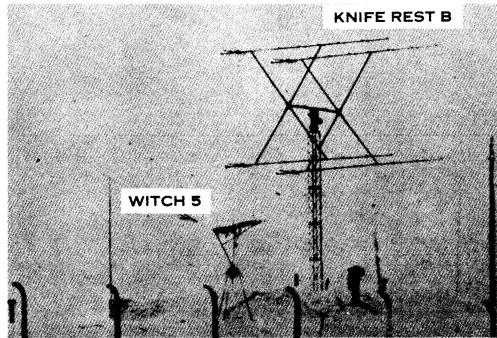


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KNIFEREST C KNIFEREST B RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



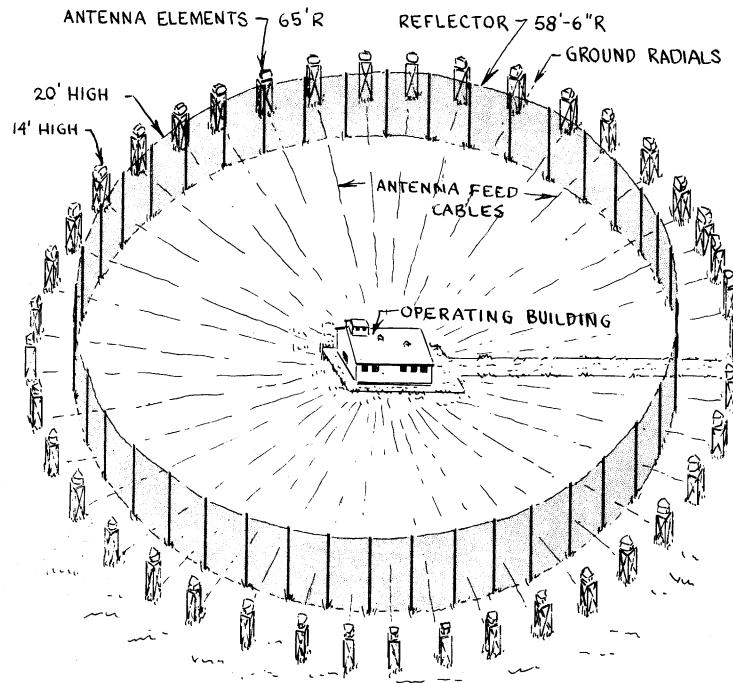
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KRUG

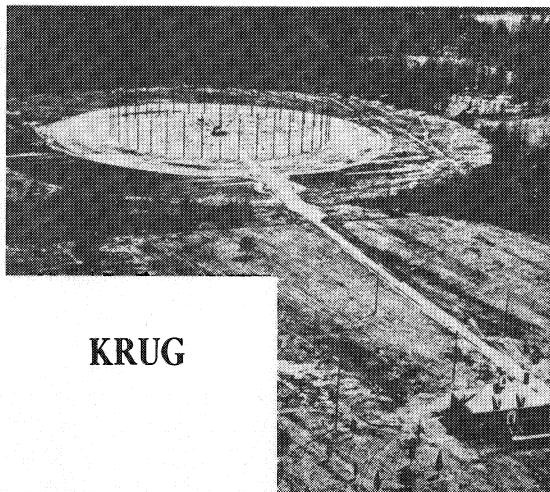
KRUG IS THE NICKNAME GIVEN TO A SOVIET HIGH FREQUENCY DIRECTION FINDING SYSTEM USED AS A NAVIGATIONAL AID DEVELOPED FROM THE GERMAN WARTIME EQUIPMENT KNOWN AS BROMMY AND WULLENWEVER. IT IS A WIDE APERTURE D. F. SYSTEM DESIGNED TO OBTAIN ACCURATE BEARINGS OF RADIO TRANSMISSIONS. IT IS CONSIDERED TO BE ONE OF THE WORLD'S BEST DIRECTION FINDER SYSTEMS WITH AN ESTIMATED RANGE OF 5,000 TO 6,000 MILES AND A DF ACCURACY OF LESS THAN PLUS OR MINUS 0.5 DEGREES. KRUG CAN BE USED TO DETECT AND TRACK AIRCRAFT TRANSMITTING IN THE HIGH FREQUENCY RANGE OR TO DETECT CLANDESTINE TRANSMITTERS IN THIS RANGE.



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KRUG

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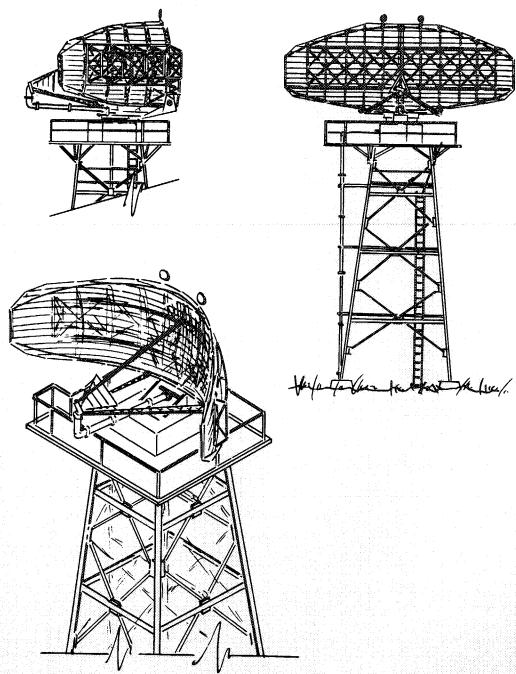
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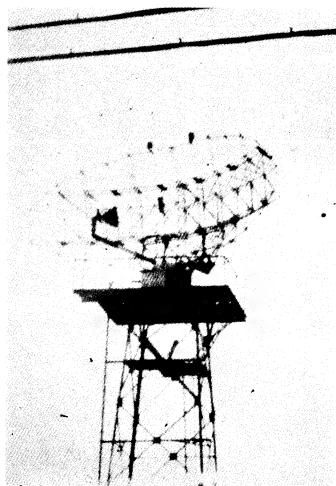
LAND FALL

LAND FALL IS A NEW POLISH RADAR OBSERVED AT WARSAW/OKECLE AIRFIELD. THE ANTENNA, MOUNTED ON A TOWER, IS A LARGE PARABOLIC TYPE WITH A SINGLE HORN TYPE FEED. IT PROBABLY IS USED FOR AIRPORT SURVEILLANCE.

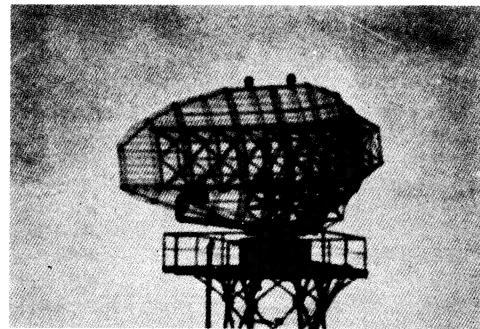


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LAND FALL



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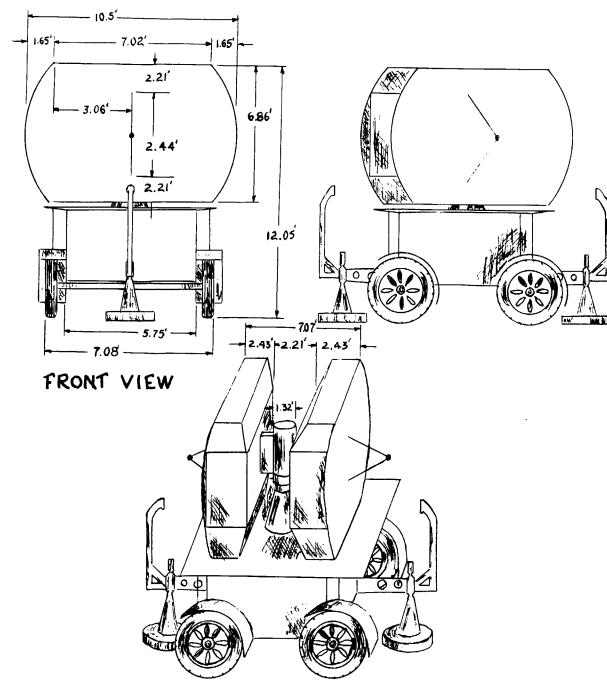
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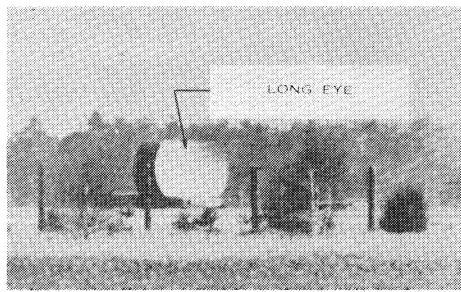
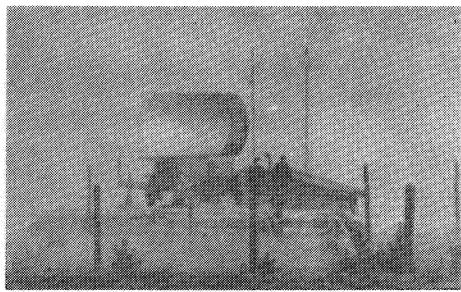
LONG EYE

THE LONG EYE RADAR IS DISTINGUISHED BY ITS TWIN, BACK-TO-BACK, TRUNCATED PARABOLIC REFLECTORS. SEEN ONLY AT AIRFIELDS IN THE SOVIET UNION AND EAST GERMANY, IT IS USED AS AN ACQUISITION RADAR FOR A GCA LANDING SYSTEM.

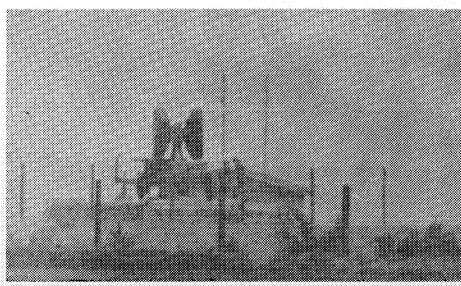


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LONG EYE



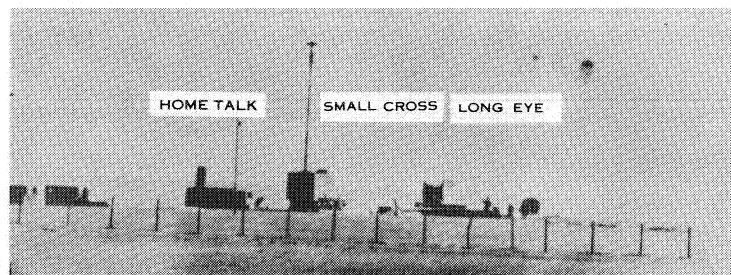
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LONG EYE RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.

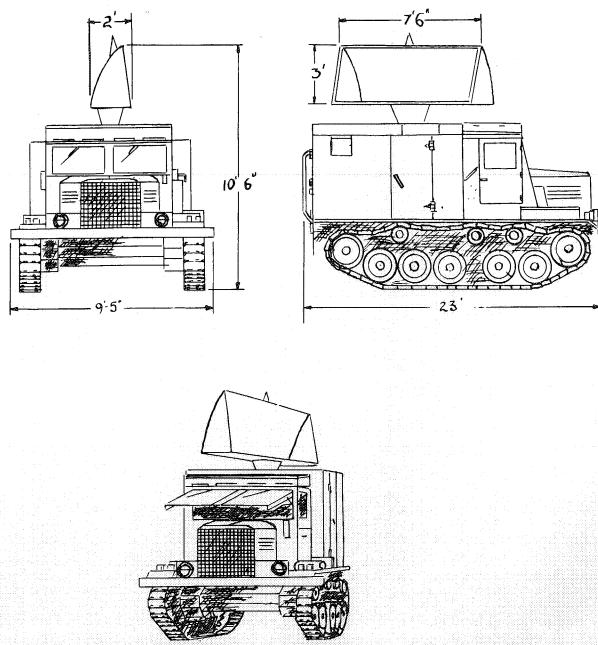
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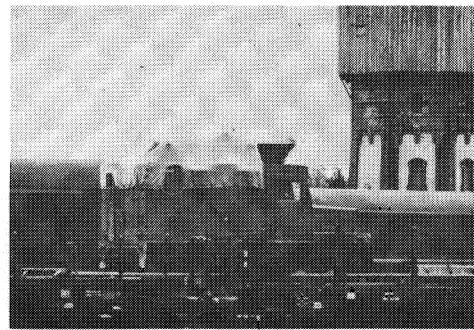
LONG TROUGH

THE LONG TROUGH, AN ACQUISITION RADAR, IS SIMILAR IN APPEARANCE TO THE ACQUISITION RADAR USED WITH THE US ARMY M-33 GUN-LAYING AND MISSILE GUIDANCE SYSTEM. IT HAS APPEARED IN EAST GERMANY AND IS MOUNTED ON A FULLY TRACKED VEHICLE.

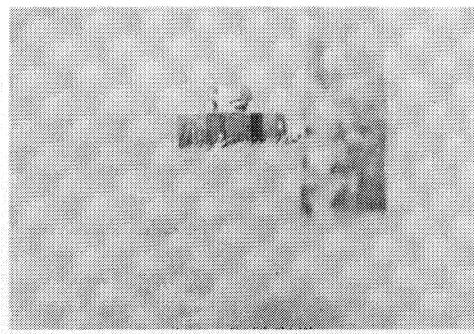
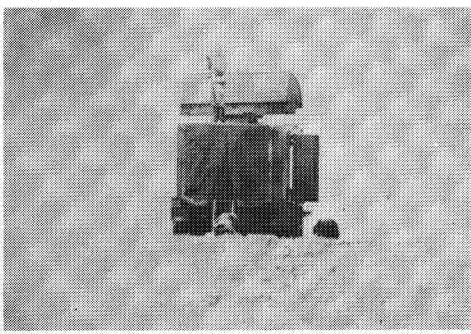


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LONG TROUGH



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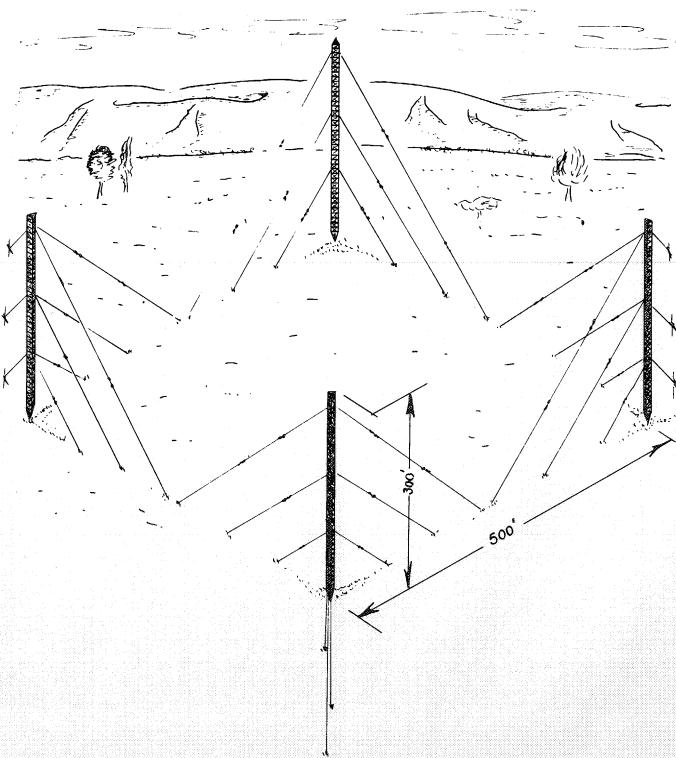
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MOON

MOON IS A SOVIET NAVIGATIONAL AID SYSTEM OPERATION IN THE LOW FREQUENCY RANGE. IT IS A HYPERBOLIC SYSTEM WHICH DEPENDS ON THE TRANSMISSIONS OF SYNCHRONIZED SIGNALS FROM THREE WIDELY SEPARATED GROUND STATIONS. MOON WAS FIRST INTERCEPTED IN ENGLAND IN JUNE 1951.

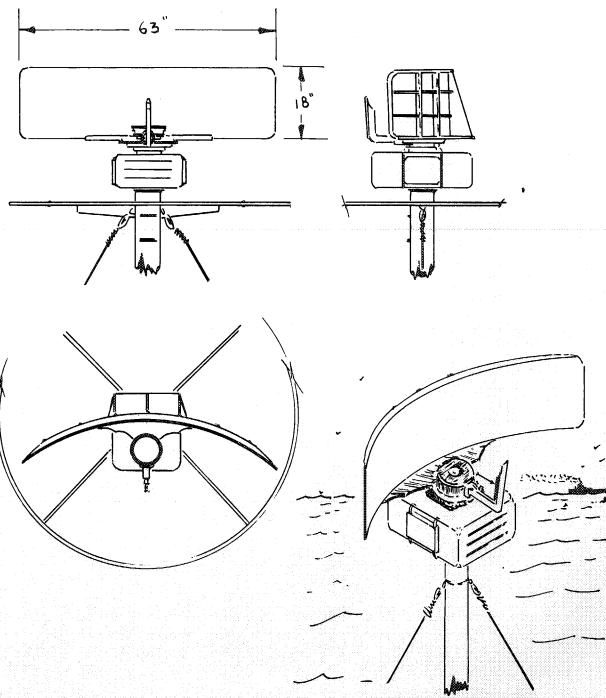


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NEPTUNE

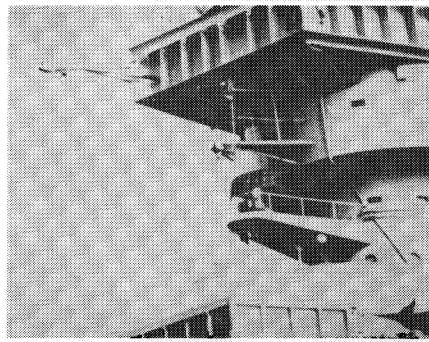
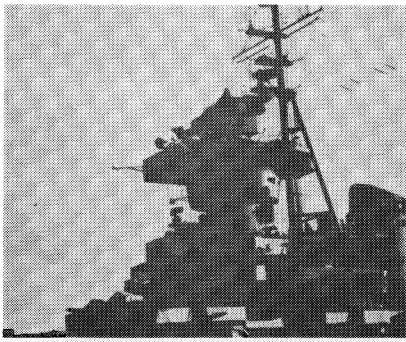
NEPTUNE IS THE DESIGNATION OF THE MOST COMMON
NAVIGATIONAL RADAR IN USE ON SOVIET MERCHANT
AND COMBAT SHIPS. IT HAS ALSO BEEN REPORTED
LAND BASED IN THE BALTIC COAST AREAS.



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NEPTUNE



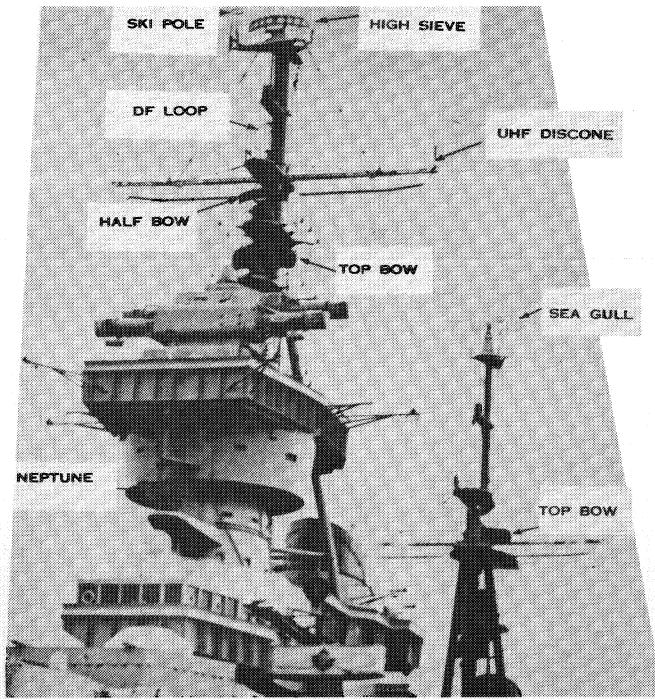
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NEPTUNE RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.

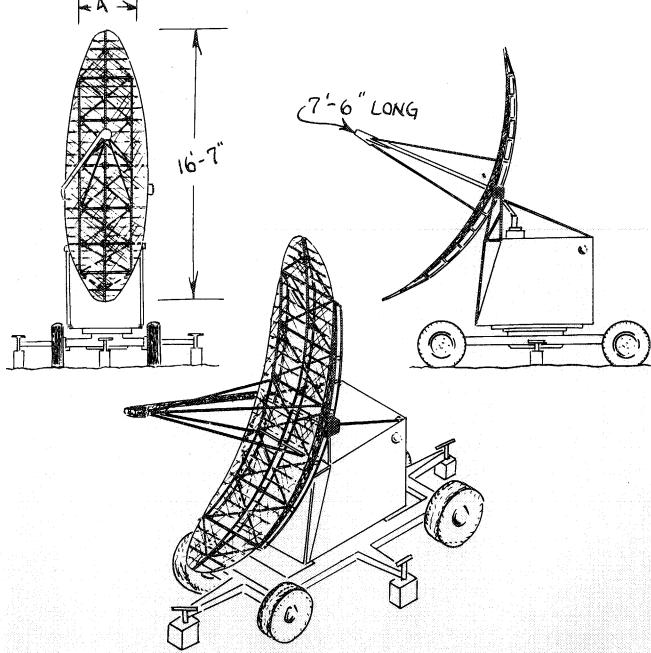
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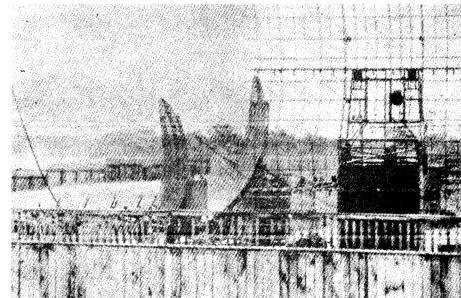
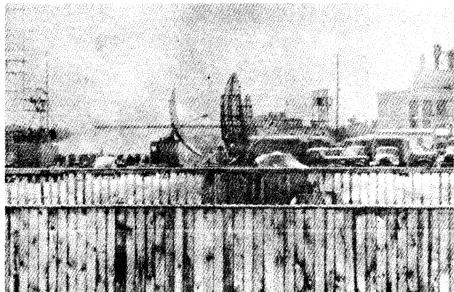
NYSA B

NYSA B IS A TRAILER MOUNTED, POLISH-MANUFACTURED, HEIGHT FINDING RADAR. ITS FEEDHORN DOES NOT APPEAR TO EXTEND OUT IN FRONT AS FAR AS THAT OF THE ROCKCAKE. NYSA B PRODUCES A VERTICAL SWEEPING BEAM BY HAVING A NODDING REFLECTOR AND FEED SYSTEM DIFFERING FROM OTHER SOVIET HEIGHT FINDERS WHOSE FEED SYSTEMS REMAIN STATIONARY IN OPERATION. NYSA B HAS BEEN SEEN AT A RADAR FACTORY IN POLAND AND IN THE UNITED ARAB REPUBLIC (SYRIA) IN CLOSE PROXIMITY TO THE NYSA C (EW) RADAR.

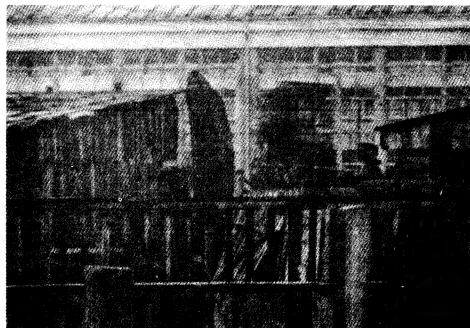
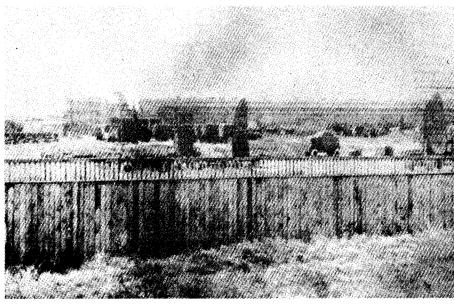


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NYSA B



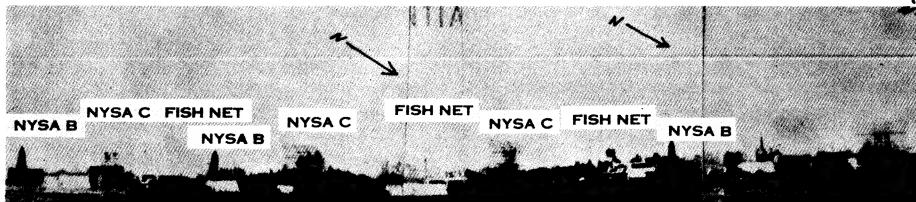
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NYSA B OBSERVED WITH OTHER ASSOCIATED RADARS.

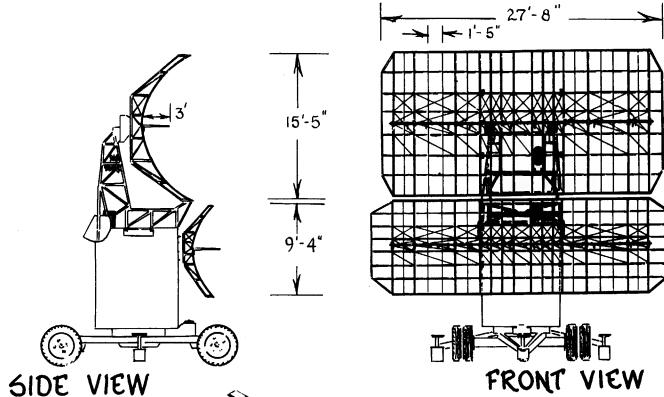
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NYSA C

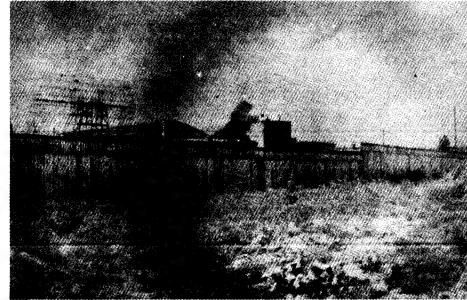
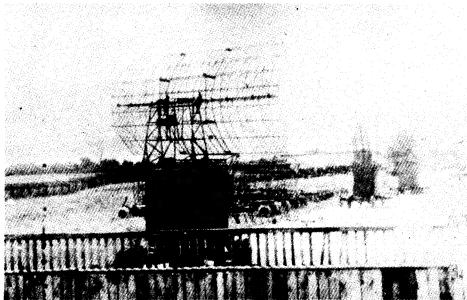
NYSA C IS A POLISH MANUFACTURED, TRAILER-MOUNTED, RANGE-AZIMUTH RADAR. TWO HORIZONTALLY POSITIONED CYLINDRICAL SECTION ANTENNAS, ONE MOUNTED ABOVE THE OTHER, ARE USED. THESE ANTENNAS ARE CONSTRUCTED OF A FINE MESH AND MOUNTED ON A VAN. NYSA C HAS BEEN OBSERVED IN CLOSE PROXIMITY TO NYSA B (HEIGHT FINDER) IN POLAND AND IN THE UNITED ARAB REPUBLIC (SYRIA).



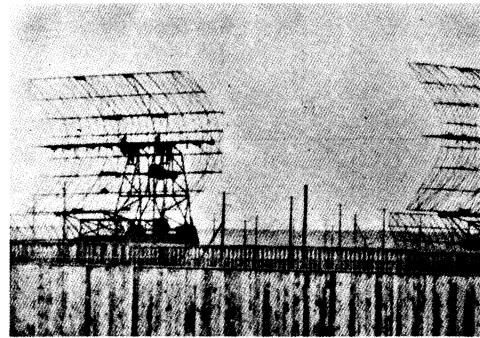
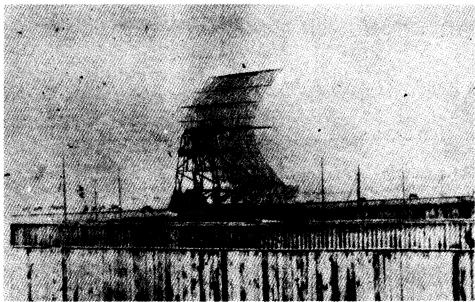
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NYSA C



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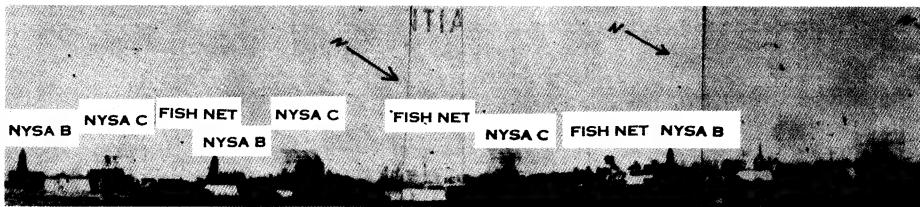
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NYSA C RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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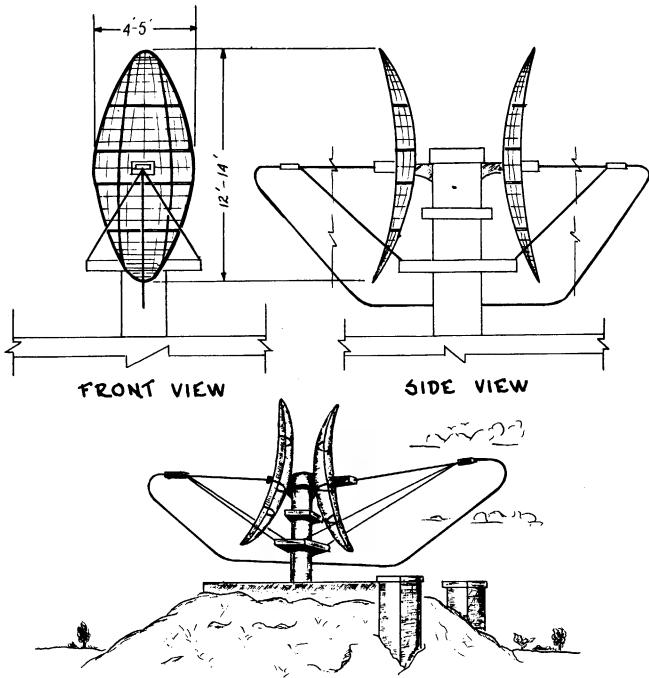
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PATTY CAKE

THE PATTY CAKE HEIGHT-FINDER PROVIDES THE ALTITUDE INFORMATION FOR THE SITES COMPOSED OF THE GAGE EW RADAR AND THE PATTY CAKE. IT HAS A BACK-TO-BACK BANANA-PEEL CONFIGURATION AND IS A FIXED INSTALLATION. THE ANTENNA IS APPROXIMATELY 5 FEET WIDE AND 14 FEET HIGH AND HAS A FIXED FEED. BOTH REFLECTORS ARE BELIEVED TO ROCK SIMULTANEOUSLY WHILE THE FEEDS ARE STATIONARY. THE PATTY CAKE HAS BEEN SEEN ONLY IN THE SOVIET UNION AND USUALLY IN CONJUNCTION WITH THE GAGE.

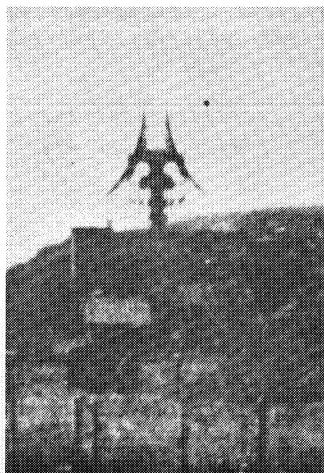
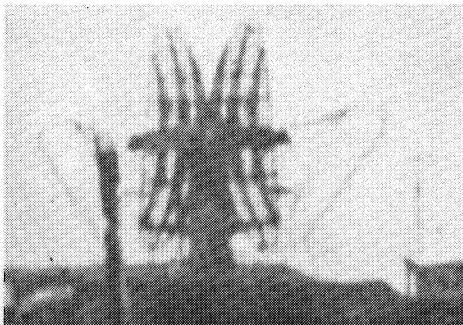


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PATTY CAKE



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PATTY CAKE RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



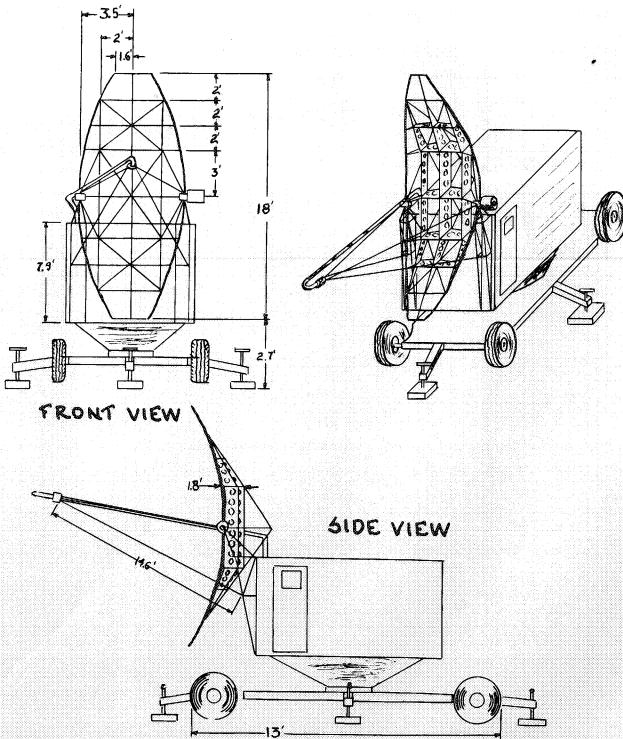
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ROCK CAKE

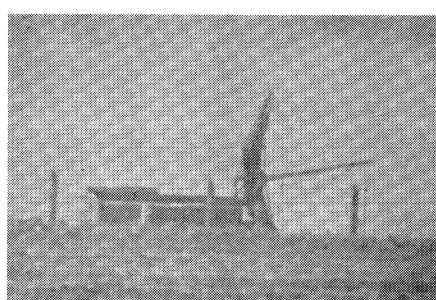
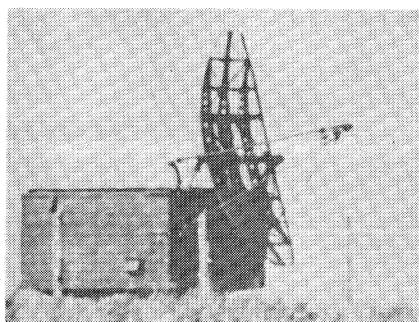
THE ROCK CAKE IS A HEIGHT-FINDING RADAR WHICH WAS FIRST OBSERVED IN EAST GERMANY IN 1956 AND HAS SINCE BEEN OBSERVED IN THE USSR AND SATELLITE COUNTRIES. THE ANTENNA IS A CUT PARABOLIC REFLECTOR ABOUT 16 FEET HIGH AND EIGHT FEET WIDE AT THE CENTER MOUNTED ON A ROTATABLE CABIN TRAILER.



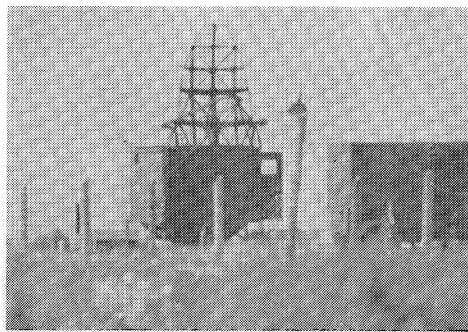
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ROCK CAKE

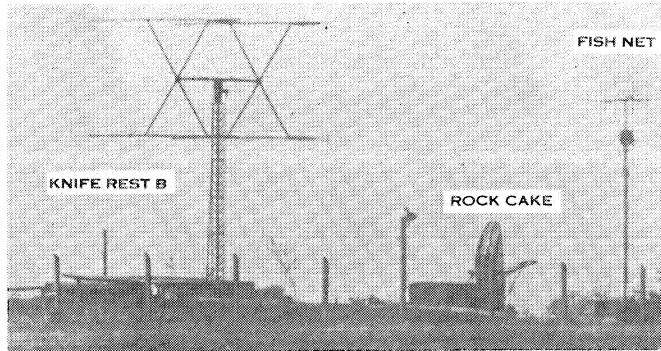


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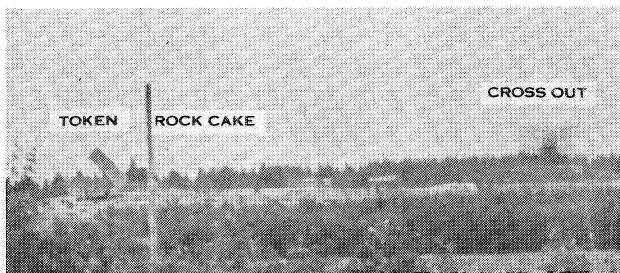
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42 a

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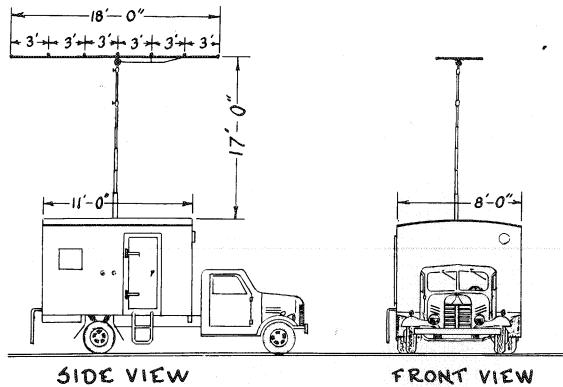
ROCK CAKE RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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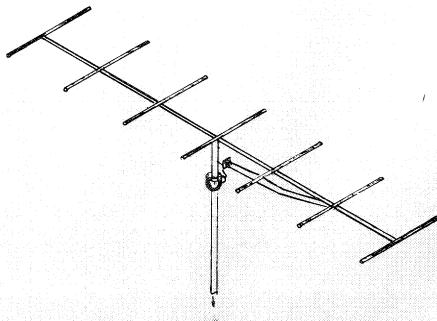
RUS II

THE RUS II IS A WORLD WAR II SOVIET METRIC RADAR WHICH HAS BEEN ALMOST WHOLLY SUPPLANTED BY THE KNIFE REST A AND DUMBO, WHICH HAVE IDENTICAL TRANSMISSION CHARACTERISTICS. THIS RADAR IS MOBILE AND IS DISTINGUISHED BY A SINGLE YAGI ARRAY WITH SEVEN DIPOLES MOUNTED ABOVE A TRUCK.



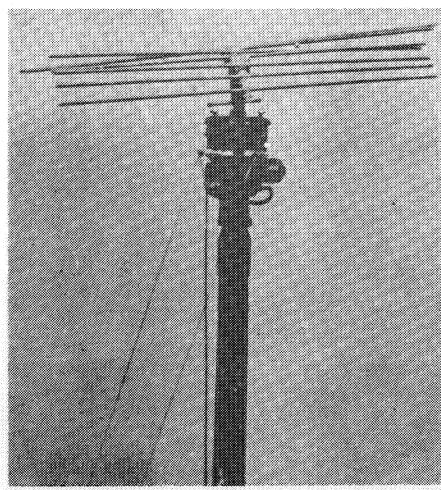
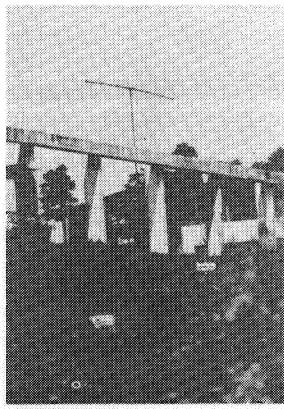
SIDE VIEW

FRONT VIEW



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RUS II

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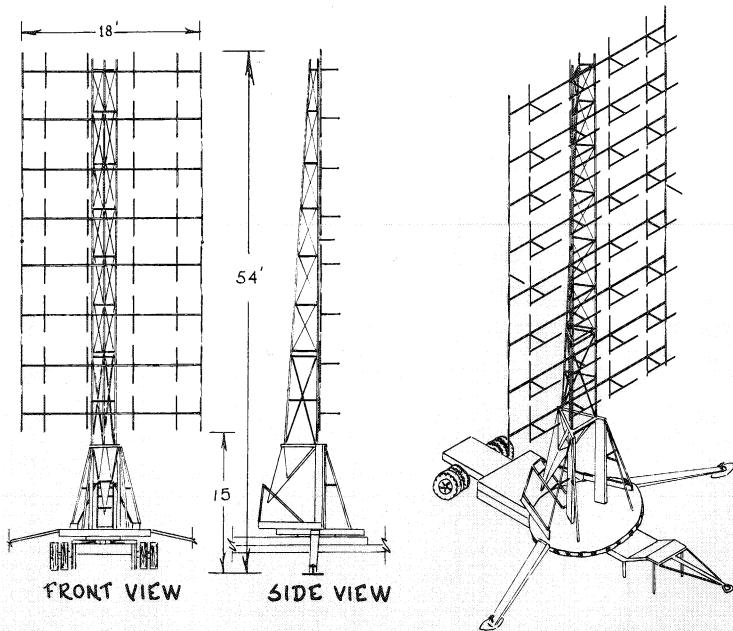
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SCR-270DA

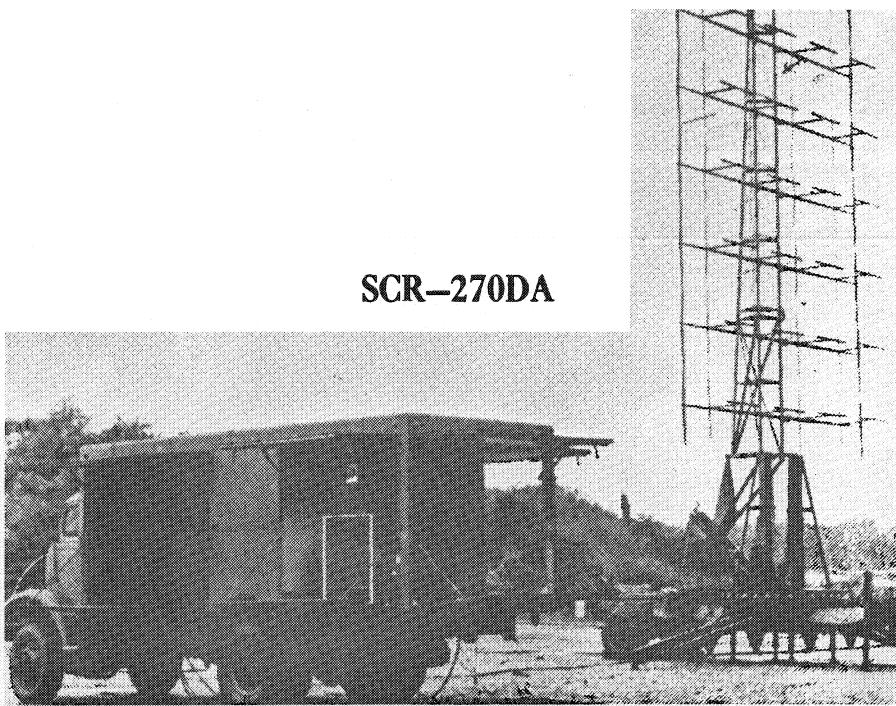
THE SCR 270 IS STILL INTERCEPTED IN THE COMMUNIST CHINA AREA OF THE FAR EAST. THIS SET IS MOBILE AND IS USED FOR EARLY WARNING. THE ANTENNA SYSTEM IS AN ARRAY OF 36 HORIZONTALLY POLARIZED DIPOLES, EACH WITH A PARASITIC REFLECTOR, ARRANGED IN HORIZONTAL LINES OF FOUR DIPOLES, STACKED 9 LINES HIGH. THE ARRAY IS TRAILER MOUNTED.



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SCR-270DA



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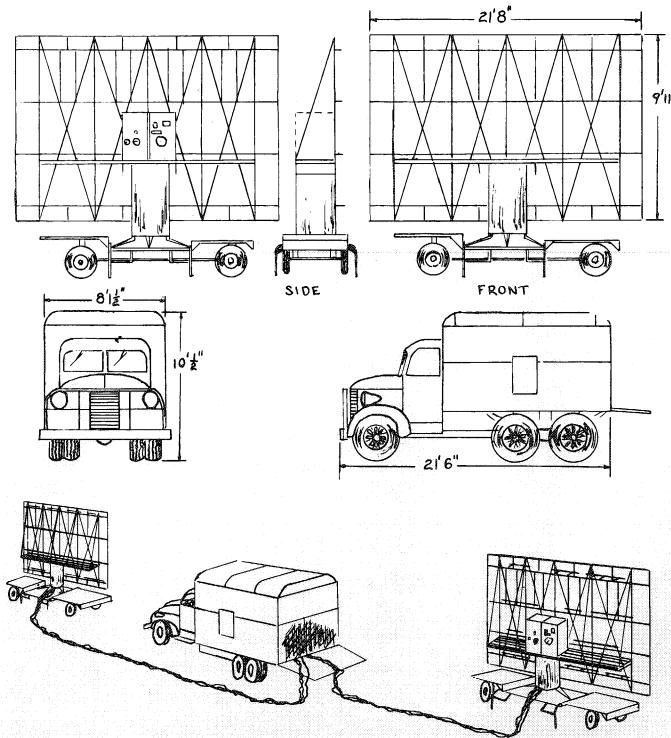
SECRET

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SCR-527

THE SCR-527 RADAR IS USED FOR MOBILE SEARCH AND GCI. IT CONSISTS OF TWO SEPARATE ANTENNAS, EACH MOUNTED ON A FOUR WHEELED TRAILER, ONE FOR THE RECEIVER AND THE OTHER FOR THE TRANSMITTER. THESE ARE PLACED ON EACH SIDE OF THE GENERATOR AND RADAR TRUCKS. THESE ANTENNAS HAVE THE APPEARANCE OF LARGE BED SPRINGS.

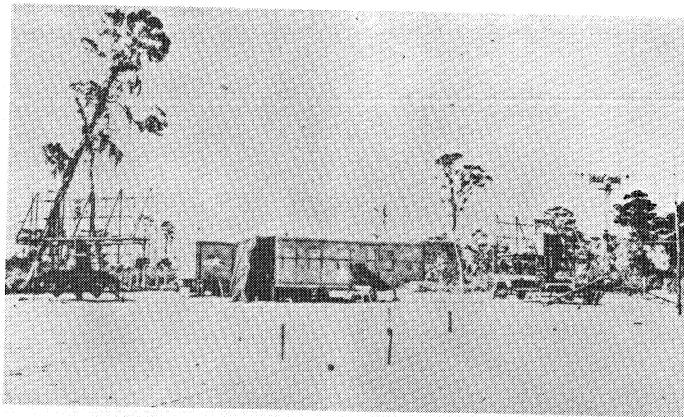


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SCR-527



SECRET

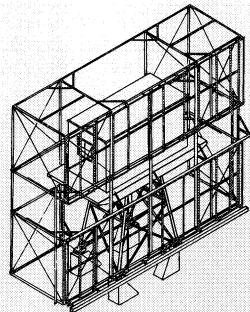
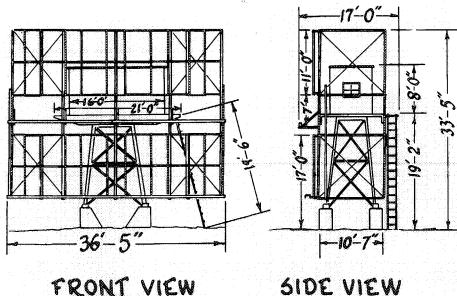
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SECRET

SCR-588

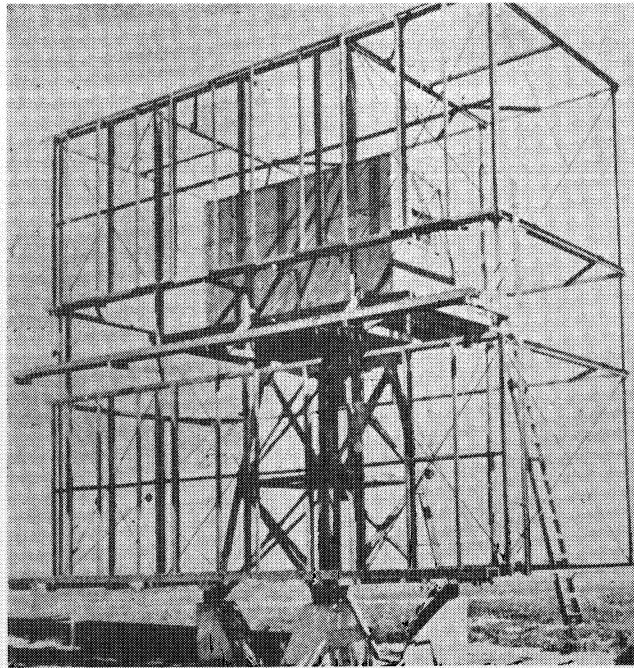
THE SCR-588 EW/GCI RADAR IS STILL
INTERCEPTED IN THE FAR EAST. THE ANTENNA
CONSISTS OF FIVE DIPOLE ARRAYS POLARIZED
HORizontally AND HAS A WIRE SCREEN REFLECTOR.



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SCR-588



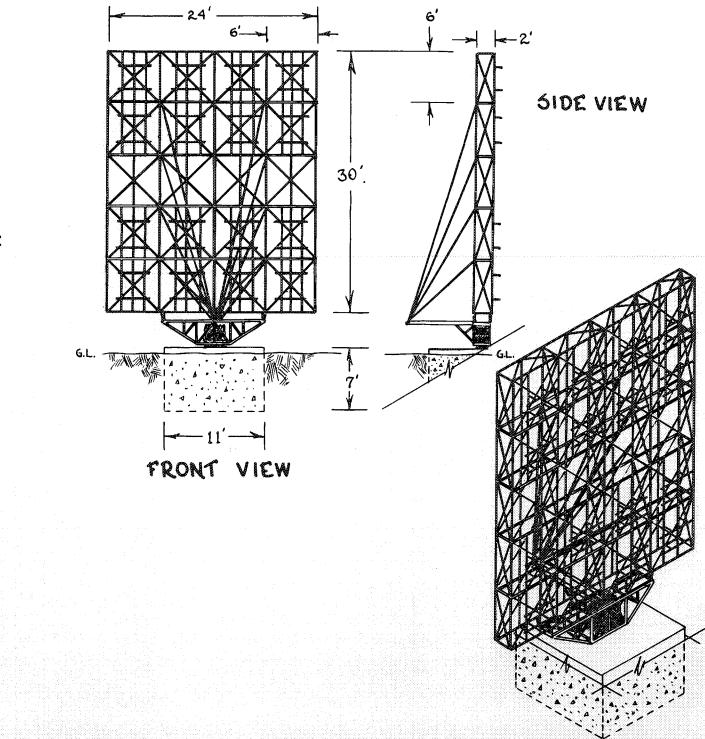
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SCR-627

THE SCR-627 IS A FIXED EW TYPE RADAR. IT MAY ALSO BE USED FOR GCI BY UTILIZING LOBE SWITCHING FOR HEIGHT DETERMINATION. THE DIPOLE ANTENNA ARRAY WITH PARALLEL WIRE REFLECTOR IS DIVIDED INTO THREE UNITS FOR HEIGHT FINDING AND GAP FILLING. ONE SECTION IS 12 DIPOLES WIDE AND 4 HIGH, THE OTHERS ARE 12 DIPOLES WIDE AND 2 HIGH.

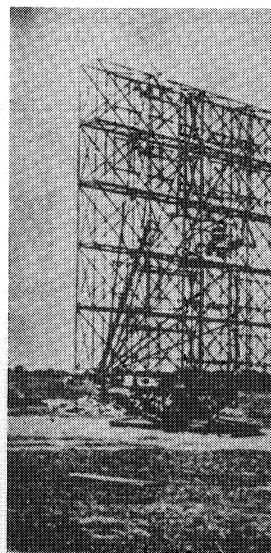
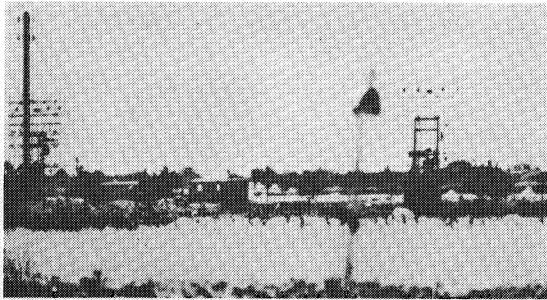


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SCR-627



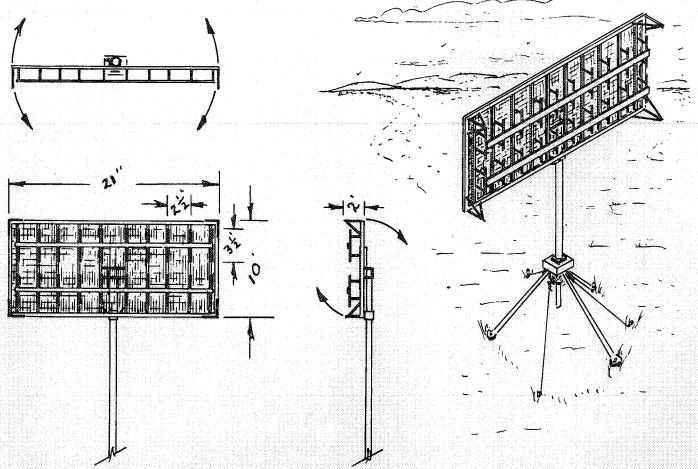
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SCORE BOARD

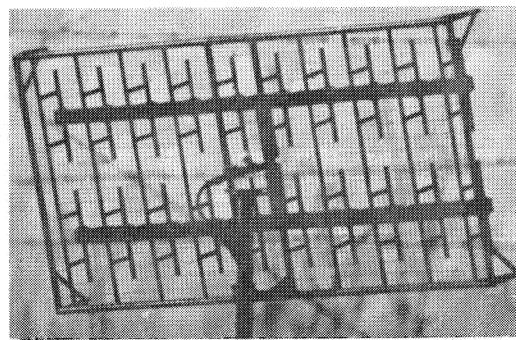
SCORE BOARD IS A NEW RADAR DEVICE OBSERVED IN EAST GERMANY AND IS PROBABLY THE GROUND PORTION OF THE NEW SOVIET IFF SYSTEM. THE ANTENNA CONSISTS OF TWO BAYS OF TEN VERTICAL DIPOLES MOUNTED IN FRONT OF A WIRE-MESH REFLECTOR AND PROBABLY OPERATES AT 570-660 MEGACYCLES.



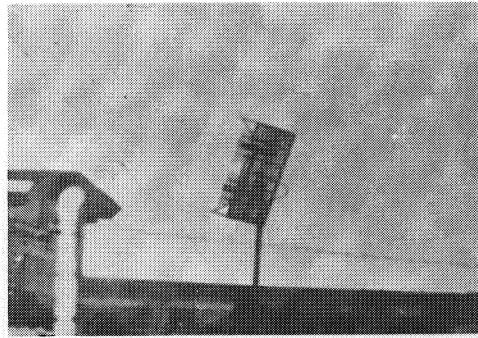
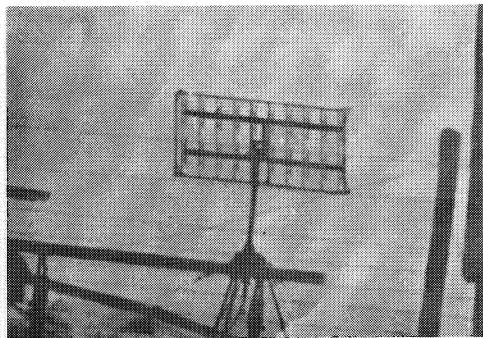
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SCORE BOARD



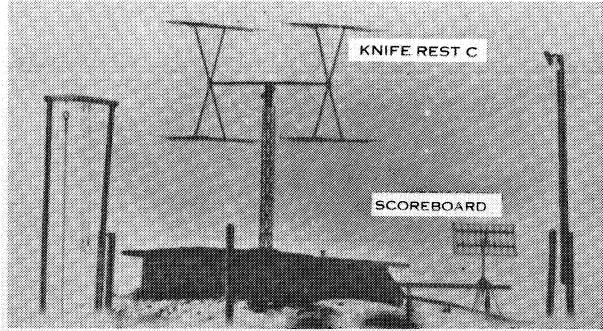
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SCORE BOARD RADAR OBSERVED WITH OTHER ASSOCIATED RADARS

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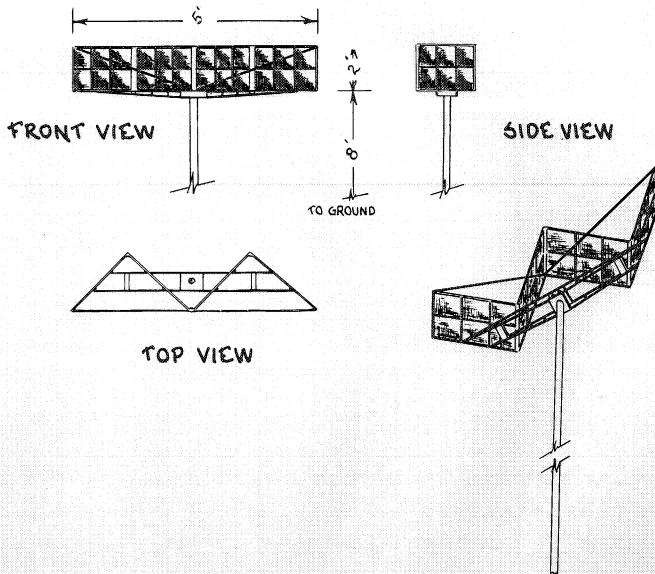
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SHORE WALK

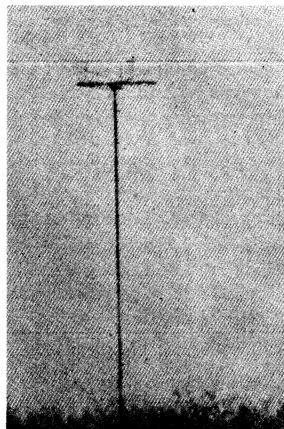
THE SHORE WALK IS THE SOVIET SHORT RANGE NAVIGATION SYSTEM SIMILAR TO THE US SHORAN SYSTEM. IT IS ALMOST IDENTICAL IN APPEARANCE TO THE CPN-2. IT HAS BEEN SEEN PRIMARILY IN THE EUROPEAN SATELITES AND WESTERN USSR, AND ALSO INTERCEPTED IN THE FAR EAST.



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SHORE WALK



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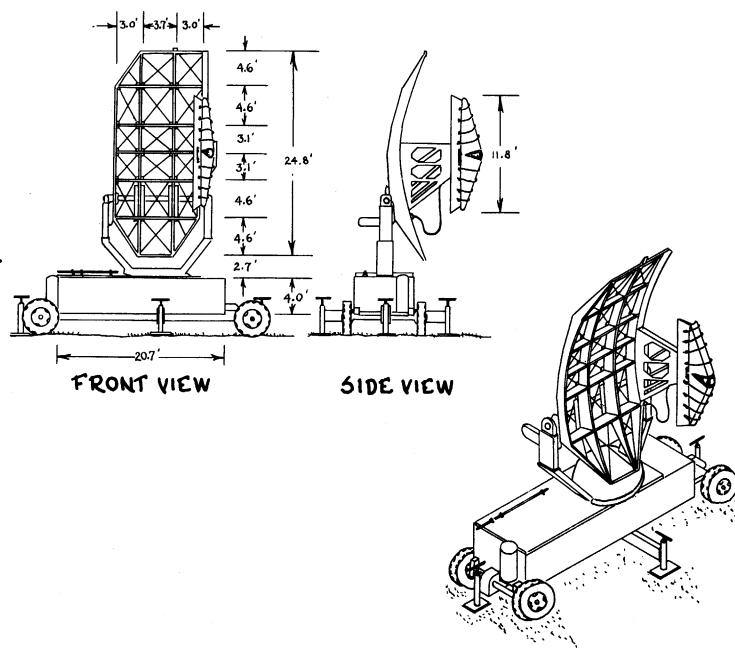
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SKEW FEED

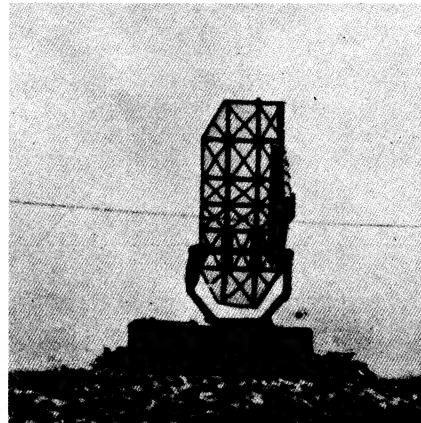
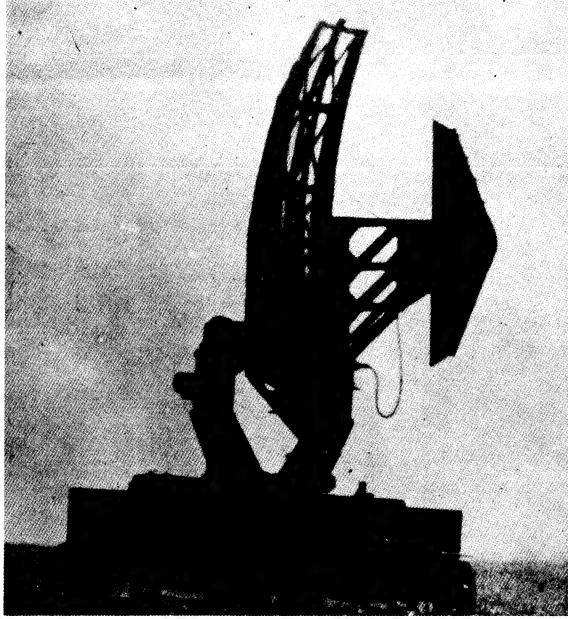
THE SKEW FEED IS A MOBILE HF RADAR WHICH APPEARED IN CZECHOSLOVAKIA, ASSOCIATED WITH THE WOOD GAGE. THIS RADAR APPEARS TO UTILIZE THE ROBINSON ELECTRONIC SCAN WHICH IS AN AMERICAN DEVELOPMENT. THIS RADAR CAN PROVIDE RANGE, AZIMUTH, AND ALTITUDE INFORMATION BUT IS USED PRIMARILY FOR ALTITUDE INFORMATION. THE SKEW FEED FIRST APPEARED IN 1955 AT CHIRUDIM AF CZECHOSLOVAKIA.



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SKEW FEED



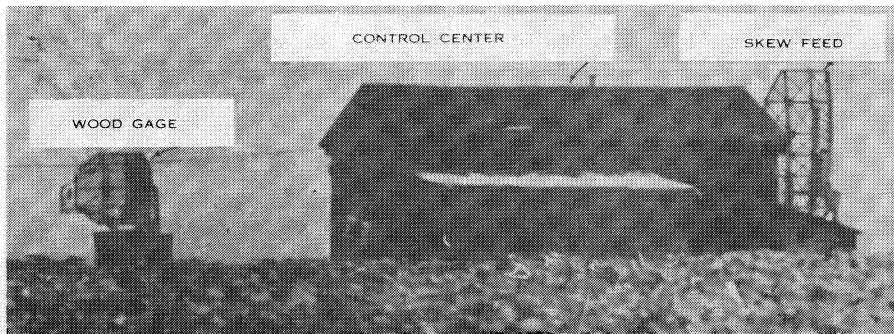
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SKEW FEED RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.

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SKIN HEAD

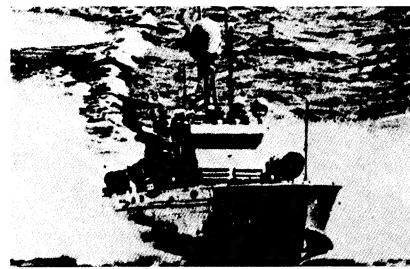
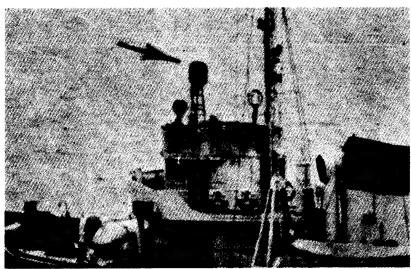
SKIN HEAD IS A RADOME INCLOSED RADAR ANTENNA
SIMILAR TO THE US TYPE SO AND IS BELIEVED TO BE
A COPY OF SO TYPES WHICH WERE PROVIDED IN LARGE
QUANTITIES UNDER LEND-LEASE TO THE SOVIET UNION.
IT HAS BEEN OBSERVED ON MTB'S, TUGS, TRAWLERS,
MERCHANT SHIPS, ICE-BREAKERS, AND SUB-CHASERS.
KNOWN ALSO AS ZARNITSA, SKIN HEAD IS USED FOR
SURFACE SEARCH.

SKECH NOT AVAILABLE

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SKIN HEAD



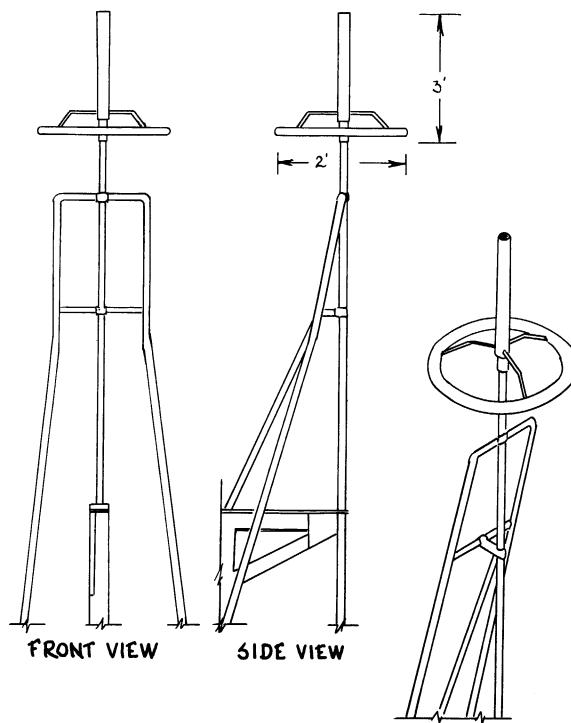
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SKI POLE

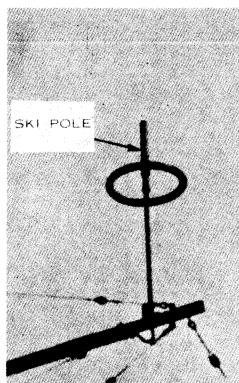
SKI POLE IS THE TRANSPONDER OF THE SOVIET IFF SYSTEM FOR THE NAVY. IT IS AN OMNI DIRECTIONAL, CIRCULAR GROUND PLANE ANTENNA SIMILAR TO THE US MK III IFF TRANSPONDER. IT IS USUALLY ASSOCIATED WITH THE YARD RAKE. HOWEVER IT HAS BEEN OBSERVED ON LAND AT A NAVAL AIR STATION. CHARACTERISTICS SHOWN BELOW ARE ESTIMATES.



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SKI POLE



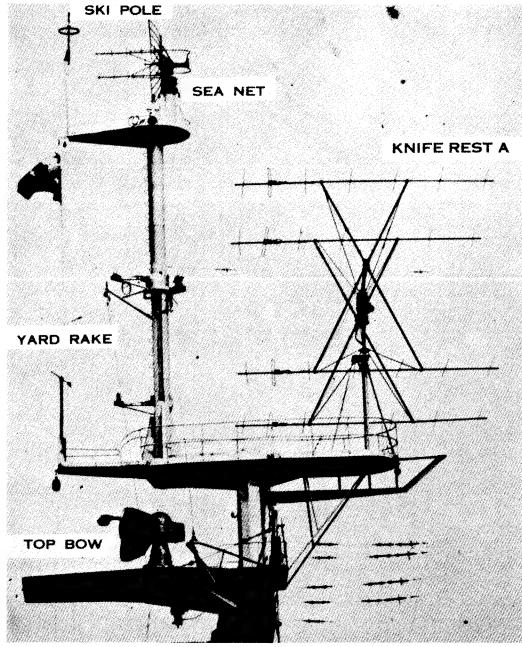
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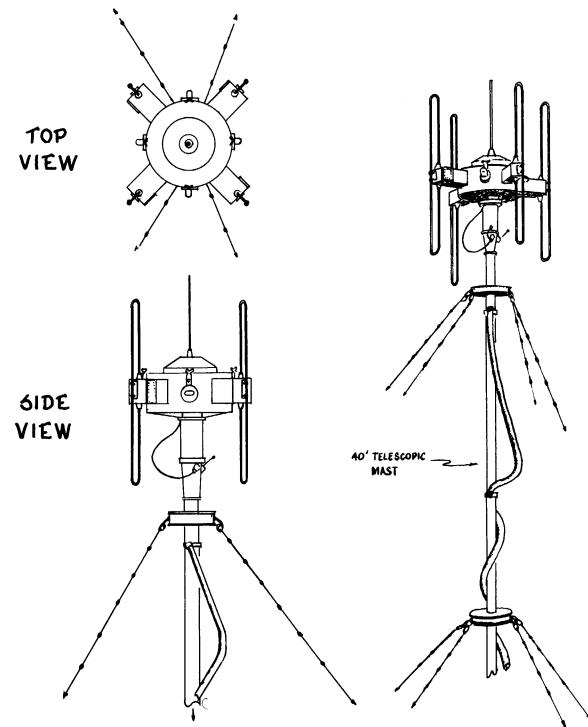
SKI POLE RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.

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SECRET

SMALL CROSS

SMALL CROSS IS A SOVIET MOBILE VHF STATION. THE MAST EXTENDS THROUGH THE VEHICLE ROOF AND SUPPORTS AN ARRAY OF FOUR VERTICAL DIPOLES ON A CRUCIFORM FRAME WITH A VERTICAL SENSE AERIAL AT THE CENTER. AT ITS TOP, DIRECTLY BEHIND THE ANTENNA HEAD, IS WHAT APPEARS TO BE A MECHANICAL DEVICE THAT ORIENTS THE NULL POINTS OF THE ANTENNA GEOPHYSICALLY. THE MAST PROPER APPEARS TO HAVE TELESCOPING SECTIONS THAT ALLOW IT TO BE COLLAPSED FOR TRANSPORT. THE ANTENNA HEAD IS POSSIBLY STOWED IN THE BOX ATOP THE CAB OF THE TRUCK.

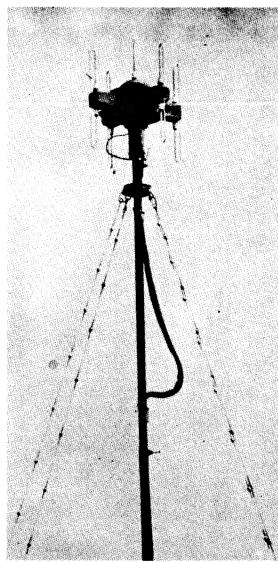


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SMALL CROSS



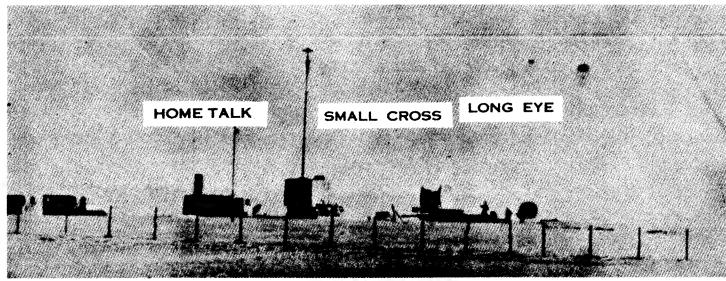
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SMALL CROSS RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.

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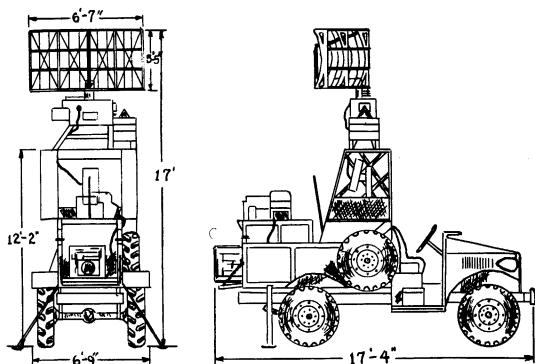
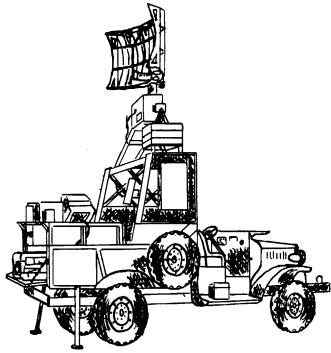
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SO-7M

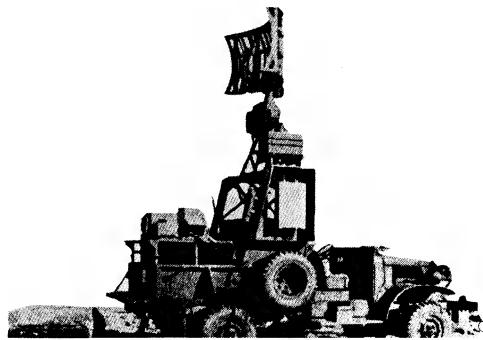
THE SO-7M IS A TRUCK MOUNTED EW RADAR WHICH IS
INTERCEPTED IN THE FAR EAST. THIS RADAR IS USED
PRIMARILY FOR SURFACE SEARCH AND EW ON LOW
FLYING AIRCRAFT.



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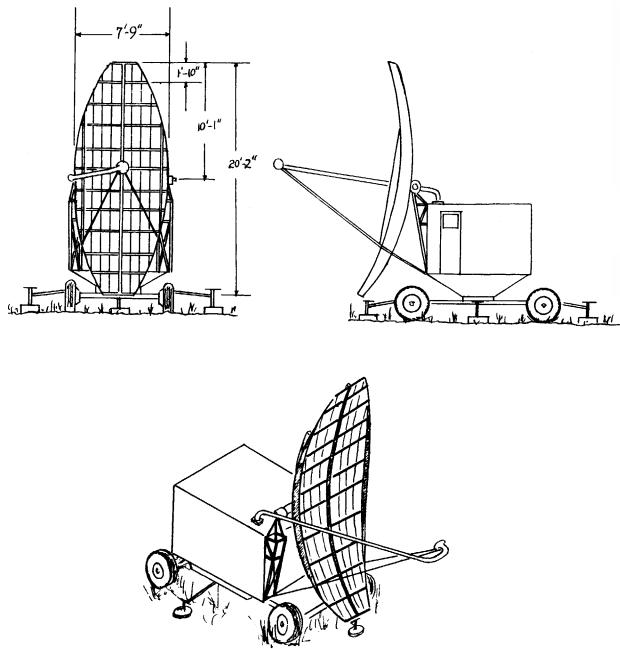
SO-7M



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STONE CAKE

STONE CAKE WAS FIRST OBSERVED IN CZECHOSLOVAKIA IN EARLY 1958. THE ANTENNA CONSTRUCTION IS SIMILAR IN APPEARANCE TO ROCK CAKE EXCEPT FOR THE FOLLOWING DIFFERENCES. STONE CAKE HAS A LONGER REFLECTOR AND A REPOSITIONED FEED. IT HAS TWELVE HORIZONTAL CROSS BRACES (INCLUDING TOP AND BOTTOM) COMPARED TO NINE ON THE ROCK CAKE. THE THREE VERTICAL BRACINGS ON THE STONE CAKE APPEAR TO BE OF MUCH HEAVIER CONSTRUCTION THAN THOSE ON THE ROCK CAKE. BOTH ROCK CAKE AND STONE CAKE ARE HEIGHT FINDING RADARS OPERATING IN THE S BAND. STONE CAKE RADARS HAVE ALSO BEEN OBSERVED MOUNTED ON BRICK TOWERS APPROXIMATELY 40 FEET HIGH.



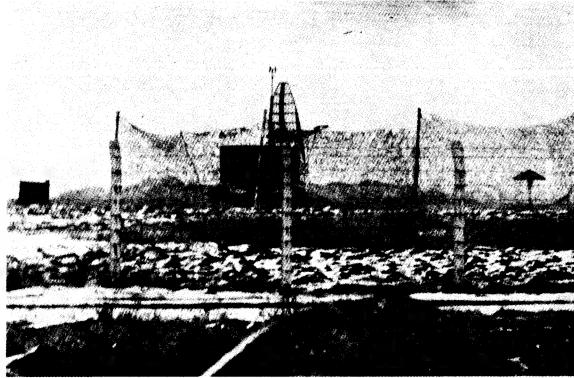
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STONE CAKE



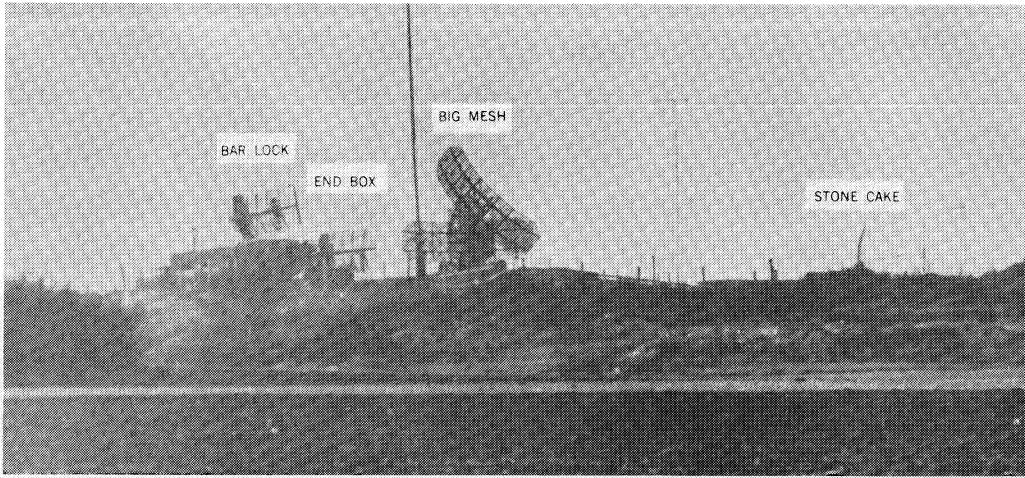
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STONE CAKE RADAR OBSERVED WITH OTHER ASSOCIATED RADARS



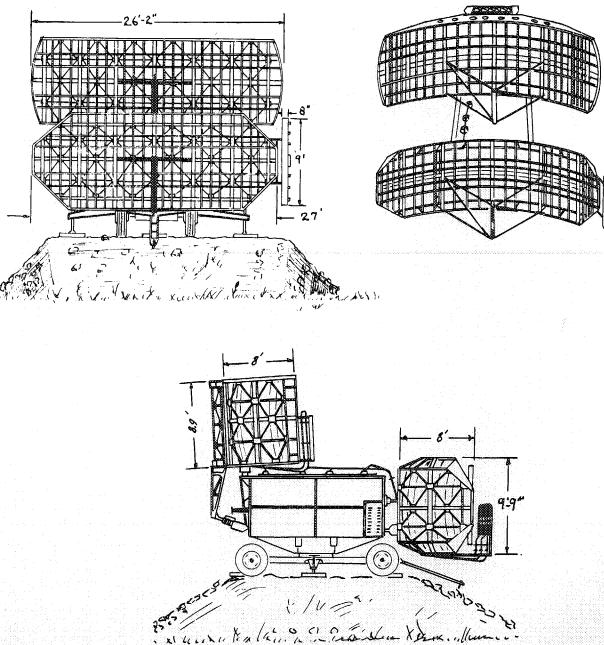
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STRIKE OUT

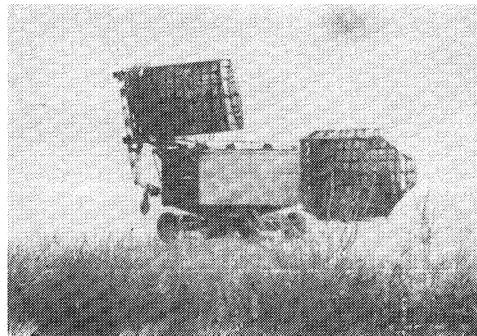
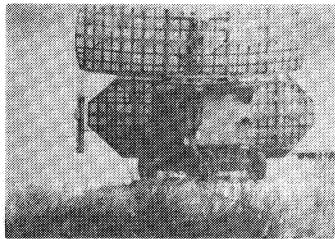
THE STRIKE OUT IS A NEW SOVIET MOBILE EW RADAR WHICH APPEARS TO BE AN ADAPTION OF THE TOKEN. IT CAN PROVIDE THE HIGH ALTITUDE EW COVERAGE WHICH THE TOKEN LACKED. THE STRIKE OUT IS USED IN CONJUNCTION WITH THE ROCK CAKE SINCE IT LACKS HEIGHT DETERMINING CAPABILITY. (IT HAS FIVE BEAMS OPERATING IN THE S BAND, THREE BEAMS ON THE LOWER ANTENNA AND TWO ON THE UPPER ANTENNA.) THIS RADAR IS DISTINGUISHED BY ITS TWO HORIZONTAL REFLECTORS WHICH ARE IDENTICAL IN SIZE AND STRUCTURE TO THE TOKEN REFLECTORS. FREQUENTLY A VERTICAL ATTACHMENT FITTED TO ONE END OF THE LOWER REFLECTOR, NICKNAMED END BOX, HAS BEEN OBSERVED ON THE STRIKE OUT.



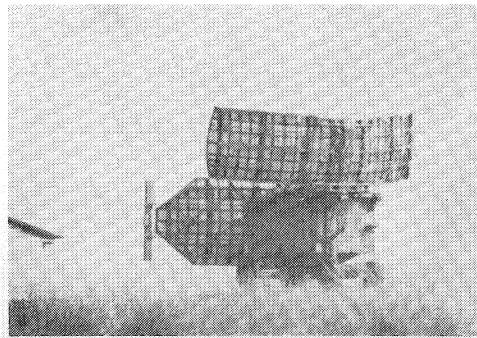
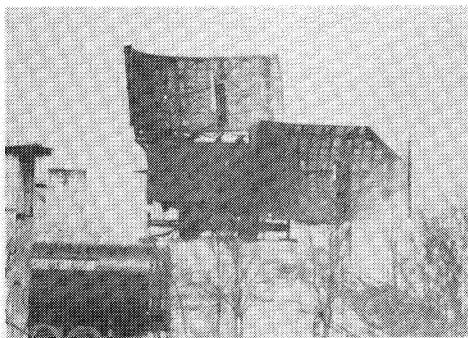
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STRIKE OUT



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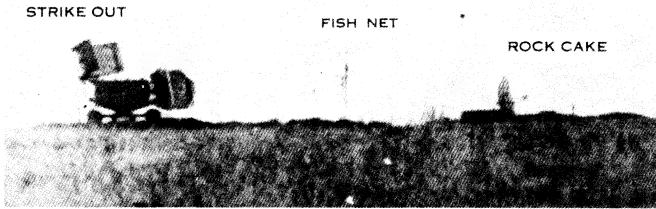
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STRIKE OUT RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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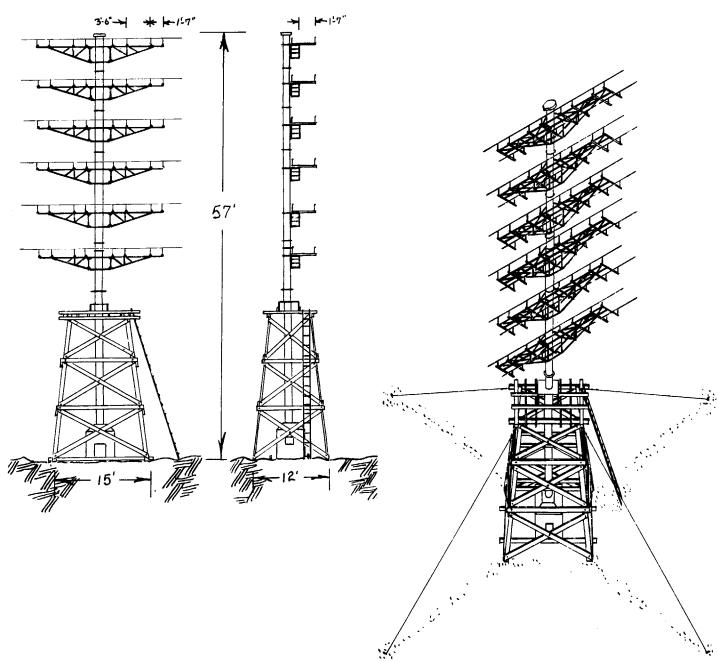
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TACHI-18

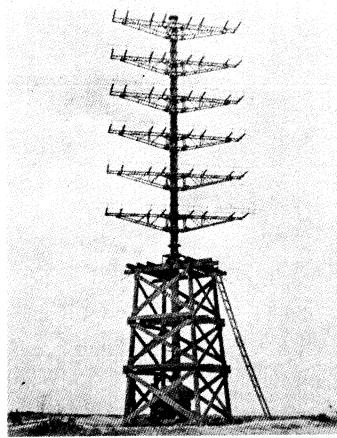
THE TACHI 18 RADAR IS A SEMI-FIXED EW SET WHICH WAS MANUFACTURED BY THE JAPANESE DURING WORLD WAR II. THE ANTENNA SYSTEM CONSISTS OF HORIZONTALLY POLARIZED DIPOLES ARRANGED IN SIX HORIZONTAL LINES WITH FOUR DIPOLES IN EACH LINE. THE LINES ARE DISPOSED ONE ABOVE THE OTHER. THIS RADAR HAS BEEN SEEN ONLY IN THE FAR EAST.



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TACHI-18



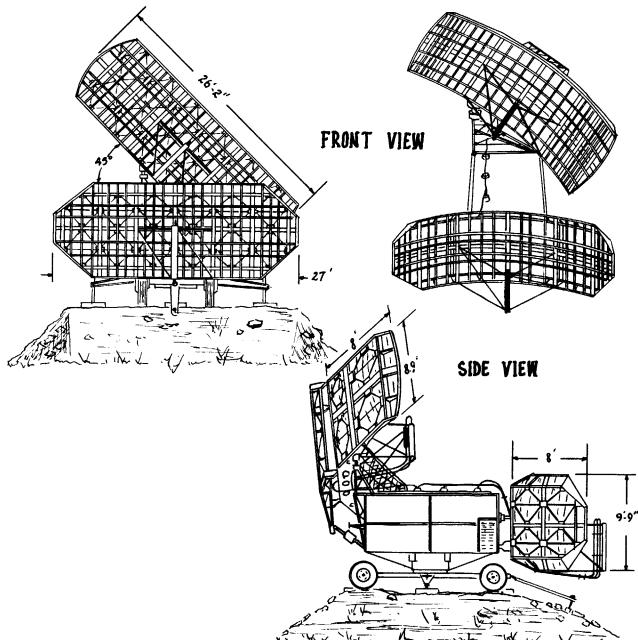
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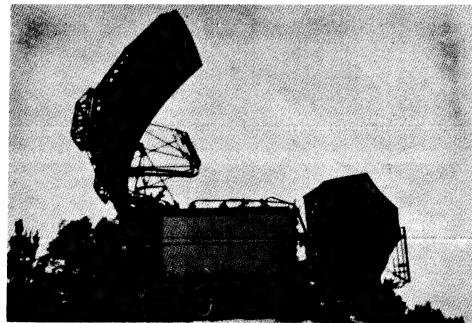
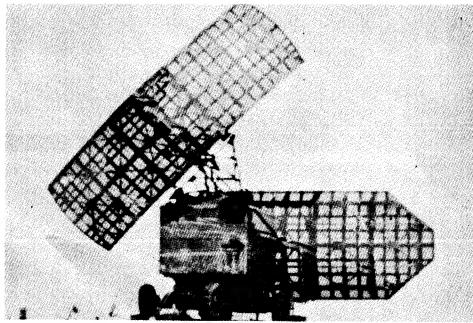
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TOKEN

THE TOKEN IS THE STANDARD SOVIET EW/GCI RADAR. THIS RADAR FIRST APPEARED IN EAST GERMANY IN 1952 AND IS NOW PREVALENT THROUGHOUT THE WHOLE SOVIET BLOC. IT IS A V-BEAM RADAR AND PROVIDES RANGE, AZIMUTH, AND ALTITUDE INFORMATION. THIS RADAR HAS 5 BEAMS OPERATING IN THE S BAND. THE TOKEN IS A COPY OF THE US AN/CPS-6 AND HAS APPEARED IN SEVERAL MODIFICATIONS. IT IS BELIEVED THAT THE STRIKE OUT IS A MODIFICATION OF THE TOKEN. THESE VISIBLE MODIFICATIONS ARE, BOTH SAILS OF THE STRIKE OUT ARE IDENTICAL TO THOSE OF THE TOKEN EXCEPT FOR THE TWO REFLECTORS BEING IN A HORIZONTAL POSITION AND THE VERTICAL ATTACHMENT (END BOX) FITTED TO ONE END OF THE LOWER REFLECTOR. THE BIG MESH IS ANOTHER V-BEAM RADAR WITH SAILS SLIGHTLY LONGER AND WIDER THAN THOSE OF THE TOKEN AND APPEAR TO HAVE A THINNER MESH STRUCTURE. MOST DISTINGUISHING DIFFERENCE FROM A FAR DISTANCE IS THE POINTED APPEARANCE OF THE TOP OF THE SLANT SAIL OF THE BIG MESH AS COMPARED TO THE BLUNT TOP OF THE TOKEN SLANT ANTENNA.

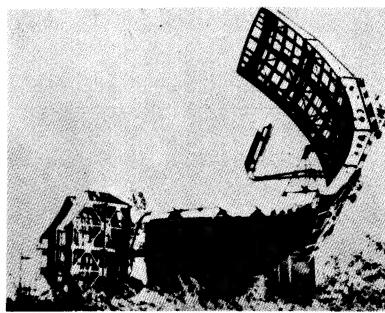
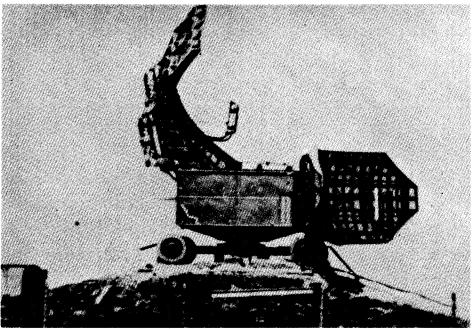


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TOKEN



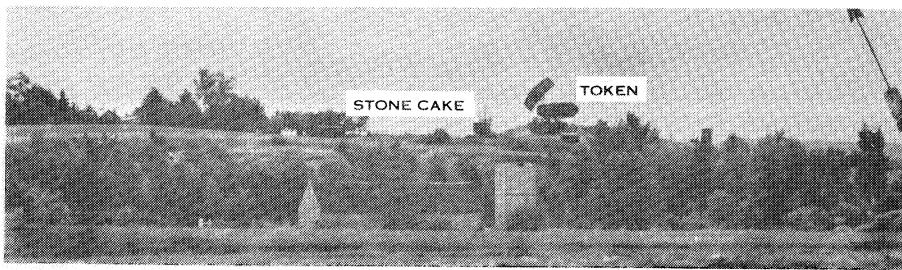
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TOKEN RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



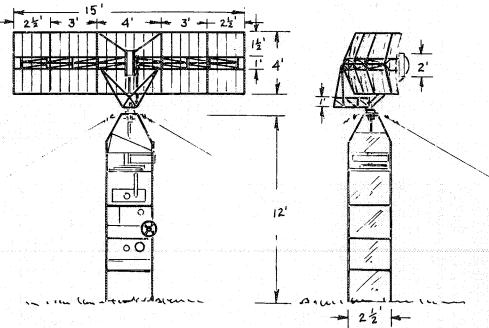
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TPS-1B

TPS-1B IS AN AMERICAN MANUFACTURED,
LIGHTWEIGHT, LONG-RANGE, PORTABLE RADAR
USED FOR GENERAL SEARCH. IT HAS BEEN
OBSERVED IN COMMUNIST CHINA.

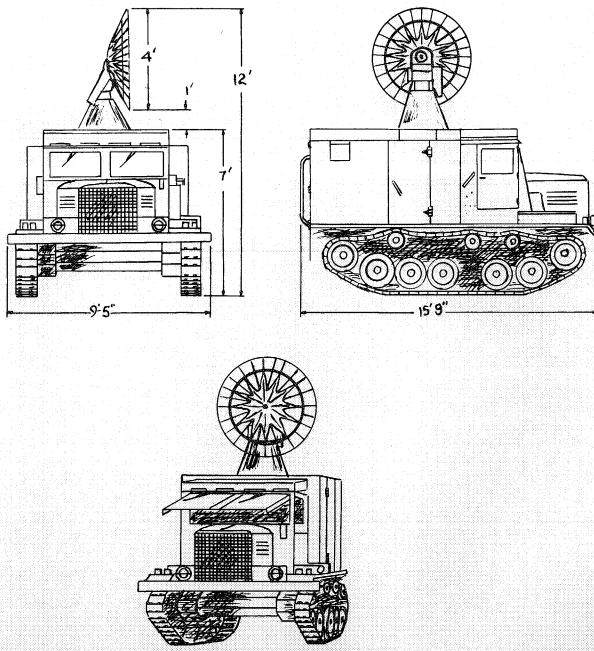


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TRACK DISH

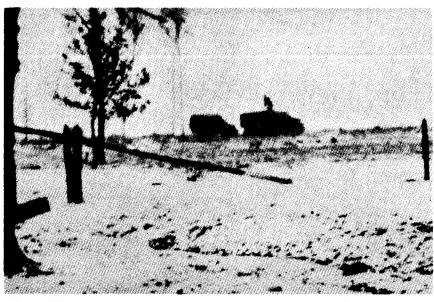
THE TRACK DISH IS A GUN-LAYING RADAR SEEN IN EAST GERMANY ASSOCIATED WITH LONG TROUGH. IT IS PART OF A SYSTEM SIMILAR TO THE US M-33 GUN-LAYING SYSTEM. THIS SET HAS BEEN RARELY SEEN AND MAY BE A TEST MODEL.



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TRACK DISH



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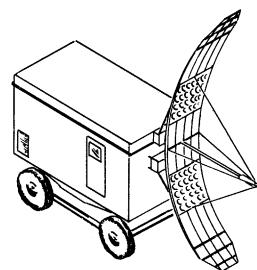
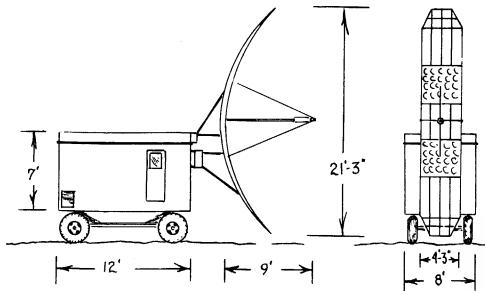
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TRESPASS

THE TRESPASS IS A HEIGHT FINDING RADAR WHICH APPEARED IN THE SOVIET UNION AND IS VERY SIMILAR IN APPEARANCE TO THE US RADAR AN/TPS-10 AND THE ROCK CAKE. IT IS DIFFICULT TO DISTINGUISH FROM THE LATTER. THE CONFIGURATION OF THIS SET IS THAT OF A TYPICAL BANANA-PEEL HEIGHT-FINDER. IT WAS FIRST SEEN AT IZMAYLOVO AF NEAR MOSCOW AND HAS SINCE APPEARED IN SEVERAL MODIFICATIONS. THIS SET IS BELIEVED TO BE AN EXPERIMENTAL TYPE.



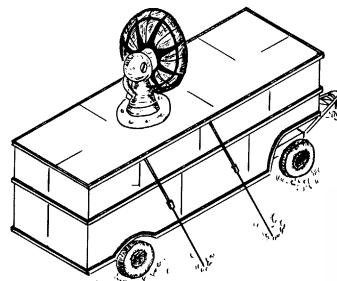
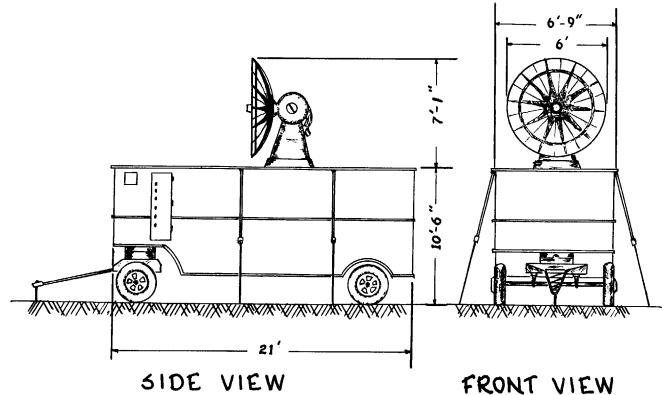
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WHIFF

THE WHIFF GL RADAR IS A COPY OF THE US SCR-584. THIS RADAR IS SIMILAR TO BOTH THE FIRE CAN AND FIRE DISH IN APPEARANCE. THE DISTINGUISHING CHARACTERISTICS OF THE WHIFF MAY BE FOUND IN THE SIZE AND CONFIGURATION OF ITS REFLECTOR AND ITS VAN. THE FOLLOWING TABLE SHOWS THE COMPARATIVE MEASUREMENTS OF THE WHIFF, FIRE CAN AND FIRE DISH.

	WHIFF	FIRE CAN	FIRE DISH
VAN LENGTH	21'	12'	16'6"
VAN WIDTH	6'9"	6'7"	6'9"
VAN HEIGHT (WITH ANTENNA)	17'7"	12'6"	16'6"
VAN HEIGHT (WITHOUT ANTENNA)	10'6"	7'6"	10'
DIA. OF REFLECTOR	6'	4'6"	6'

THE REFLECTOR OF THE WHIFF ANTENNA IS CHARACTERIZED BY ITS TEN WIDE SPOKES RADIATING FROM THE CENTER.



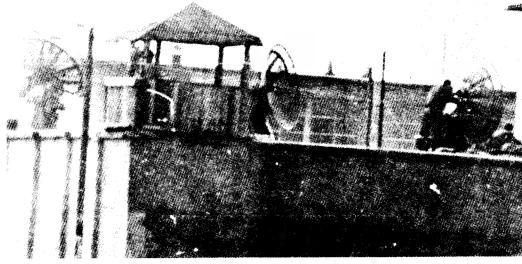
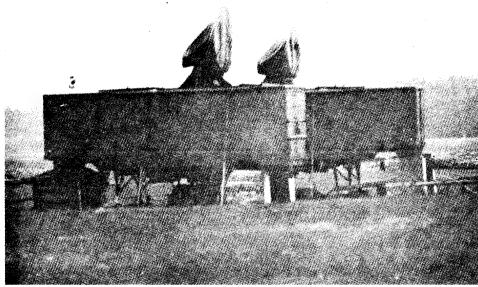
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WHIFF



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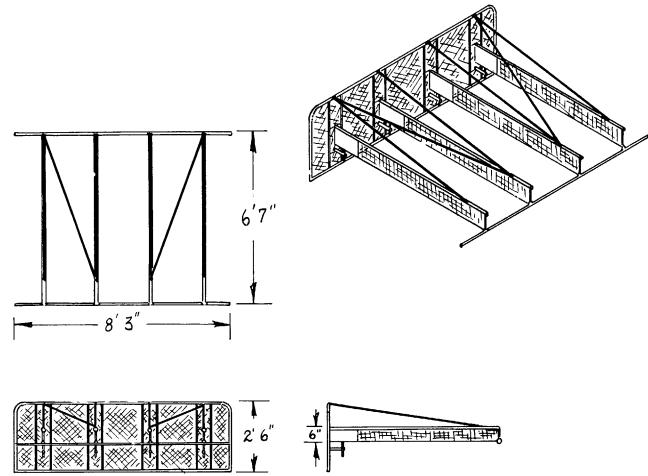
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WITCH FOUR

WITCH FOUR IS THE FOUR PARALLEL ROD ARRAY FIRST OBSERVED MOUNTED ON TOP OF THE HORIZONTAL REFLECTOR OF THE BIG MESH RADAR AT MERSEBURG, EAST GERMANY. LATER IT HAS BEEN REPORTED MOUNTED ON BIG MESH RADARS, TOKENS, AND AT LEAST ONCE ON A STRIKE OUT. IT IS BELIEVED TO HAVE AN IFF FUNCTION.

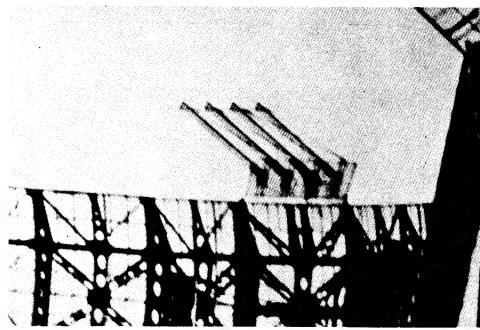
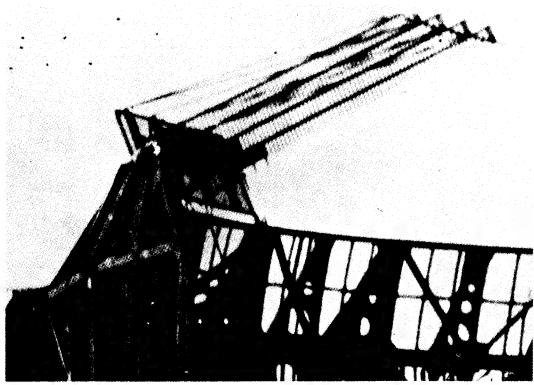


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WITCH FOUR



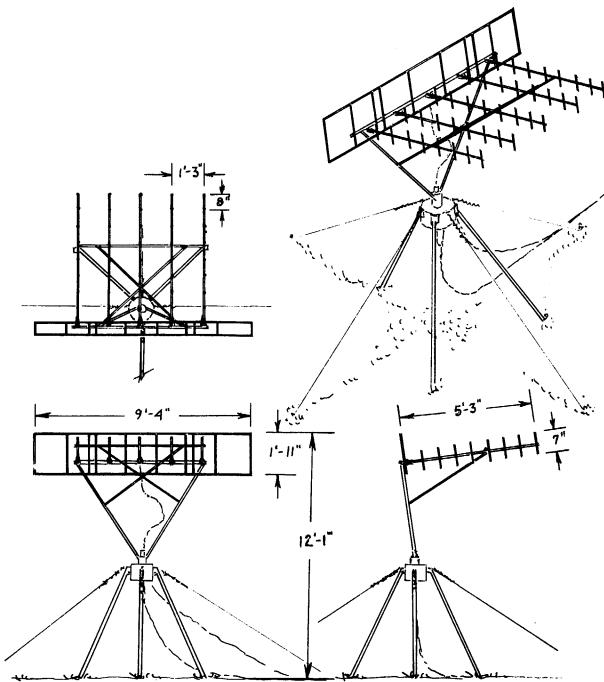
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WITCH FIVE

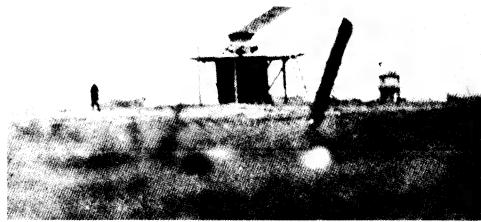
WITCH FIVE IS AN INDEPENDENT ANTENNA ARRAY CONSISTING OF FIVE PARALLEL RODS MOUNTED IN FRONT OF A REFLECTOR. THE ARRAY IS TILTED UP AT APPROXIMATELY 20 DEGREES AND APPEARS CAPABLE OF AZIMUTH ROTATION. WITCH FIVE HAS AN IFF FUNCTION OPERATING AT 660 MEGACYCLES. IN AT LEAST ONE CASE IT HAS BEEN OBSERVED MOUNTED ON A SVERDLOV CLASS CRUISER.



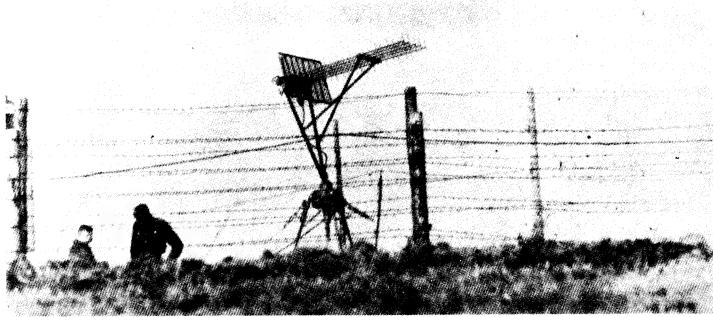
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WITCH FIVE



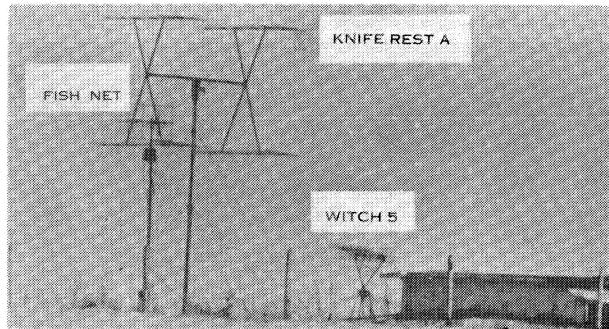
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WITCH 5 RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.

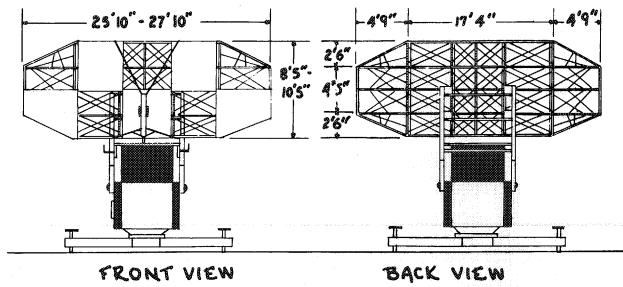
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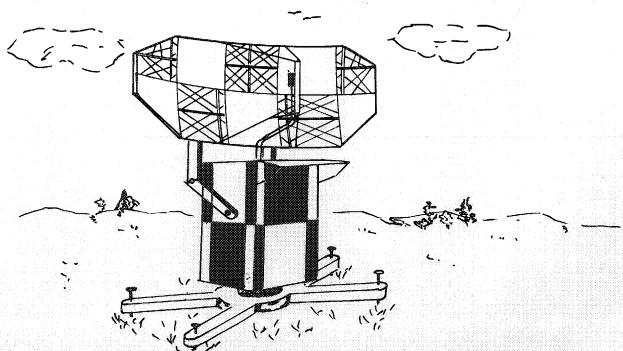
WOOD GAGE

THE WOOD GAGE IS A MOBILE EW RADAR WHICH HAS APPEARED ONLY IN CZECHOSLOVAKIA. IT PROVIDES BOTH RANGE AND AZIMUTH INFORMATION AND HAS BEEN SEEN ASSOCIATED WITH SKEW FEED, A CZECH HEIGHT-FINDER. THIS RADAR APPEARS IN BOTH A MILITARY AND CIVILIAN MODEL. IT IS BELIEVED THAT THE CIVILIAN VERSION IS USED FOR TRAFFIC CONTROL. THE WOOD GAGE FIRST APPEARED IN 1955. THE CIVILIAN VERSION IS KNOWN AS THE OR-I IN THE PROSPECTUS PUBLISHED ON THE RADAR.



FRONT VIEW

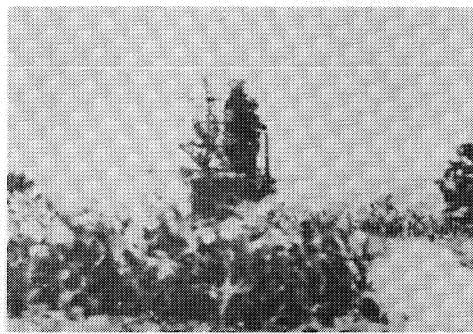
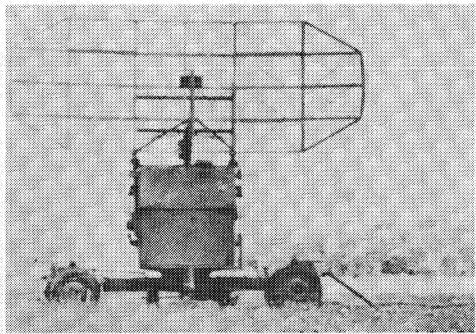
BACK VIEW



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WOOD GAGE



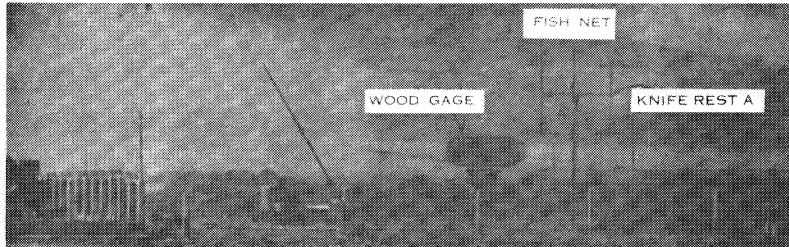
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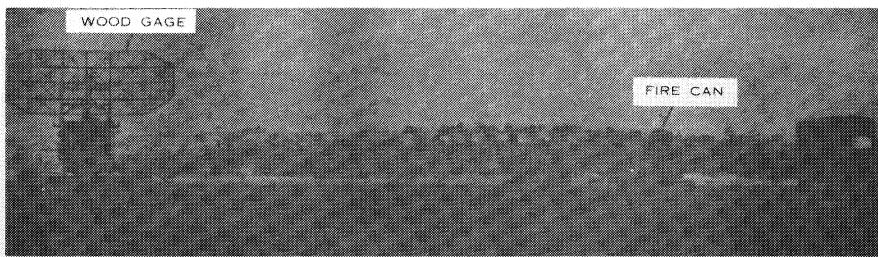
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WOOD GAGE RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



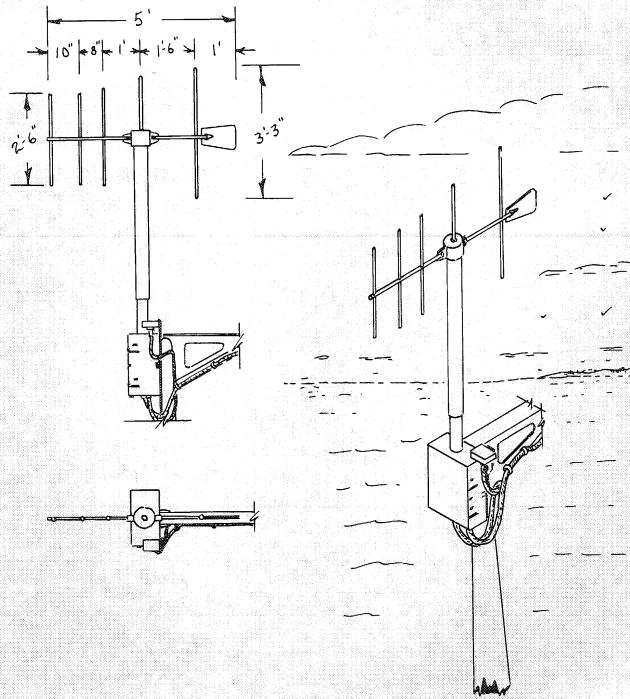
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YARD RAKE

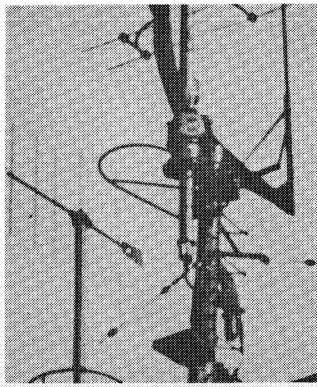
YARD RAKE IS THE INTERROGATOR OF THE SOVIET SHIPBORNE IFF SYSTEM AND RESEMBLES BRITISH INTERROGATORS. IT IS USUALLY ASSOCIATED WITH THE SKI POLE TRANSPONDER. RECENT INFORMATION REPORTED YARD RAKE LAND-BASED IN THE BALTIC COAST AREAS.



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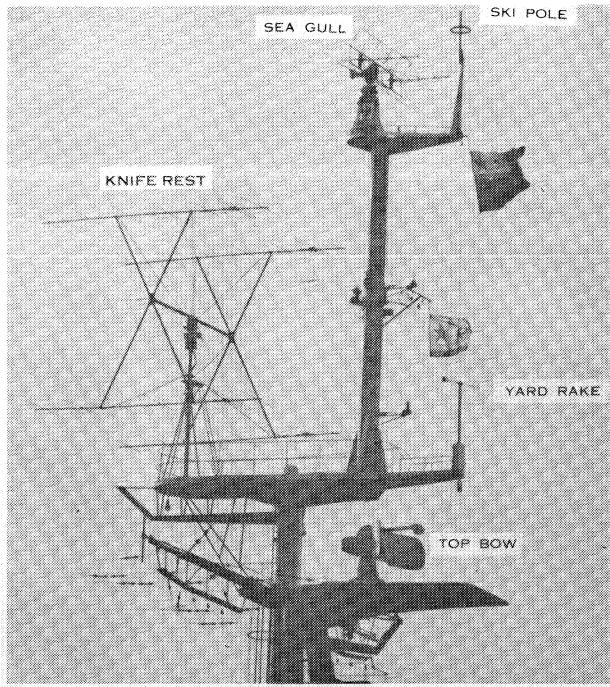
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YARD RAKE



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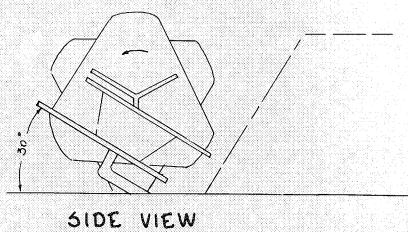
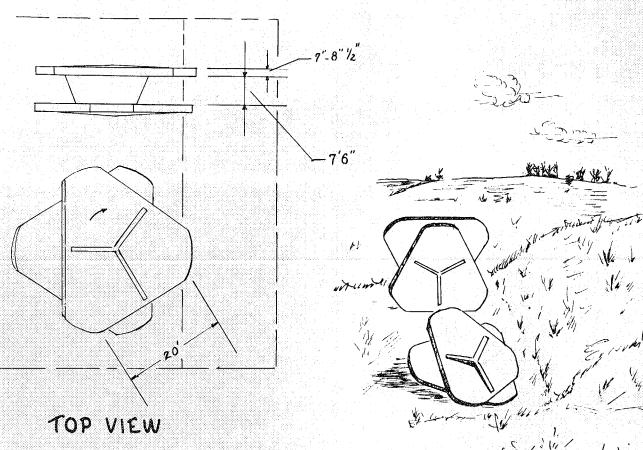
YARD RAKE RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.

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YO YO

(COMPLETE SYSTEM IS KNOWN AS B200)

THE YO YO IS A MISSILE TRACKING RADAR ASSOCIATED WITH SOVIET SAM COMPLEXES IN THE MOSCOW AND LENINGRAD AREAS. THIS RADAR IS USUALLY LOCATED ABOUT ONE MILE FROM THE END OF A SAM COMPLEX AND CONSISTS OF TWO ANTENNAS AT ONE END OF A CONCRETE BUNKER. EACH ANTENNA CONSISTS OF TWO TRIANGULAR PLATES SEPARATED BY A SHALLOW DRUM. THESE ANTENNAS REVOLVE IN MUCH THE SAME MANNER AS A YO YO. IT IS BELIEVED THAT RADIATIONS ARE EMITTED FROM THE EDGE OF EACH PLATE. ONE ANTENNA IS ORIENTED IN THE VERTICAL PLANE AND THE OTHER AT AN ANGLE OF ABOUT 45 DEGREES. A VERTICAL ANTENNA PLACED NEAR THE YO YO IS POSSIBLY USED FOR MISSILE GUIDANCE.

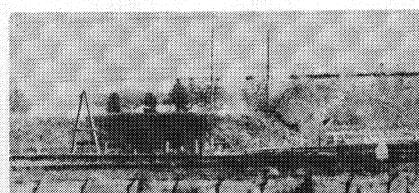


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YO YO



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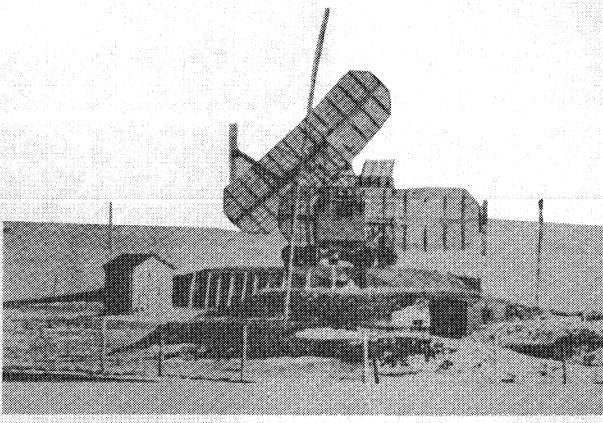
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B I G B A R R A D A R

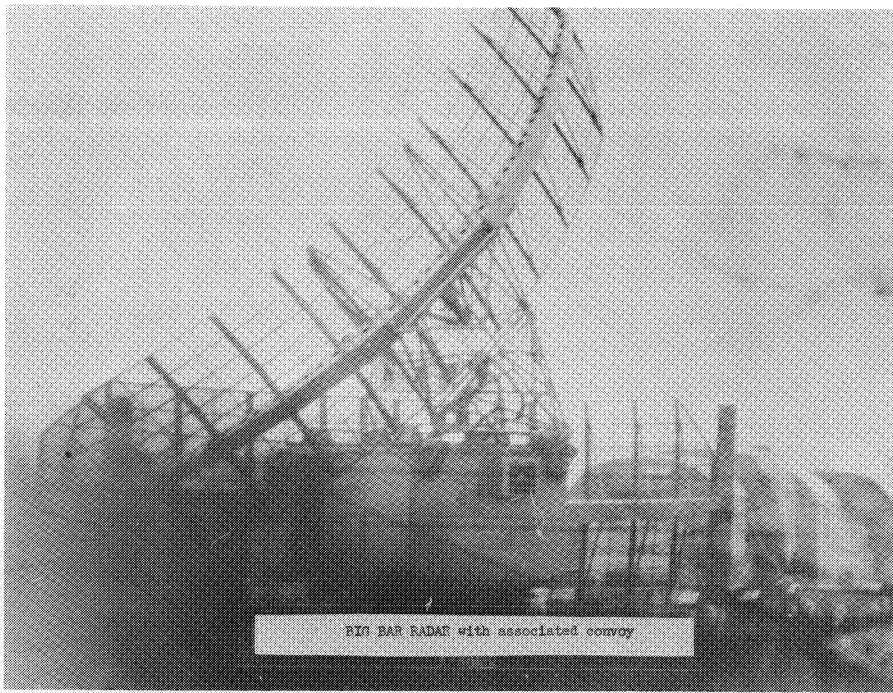
BIG BAR RADAR is a new Soviet radar with probably an EW/GCI role. Antenna design has been streamlined over the BAR LOCK, possibly for easier installation and maintenance.



BIG BAR NEW SOVIET RADAR

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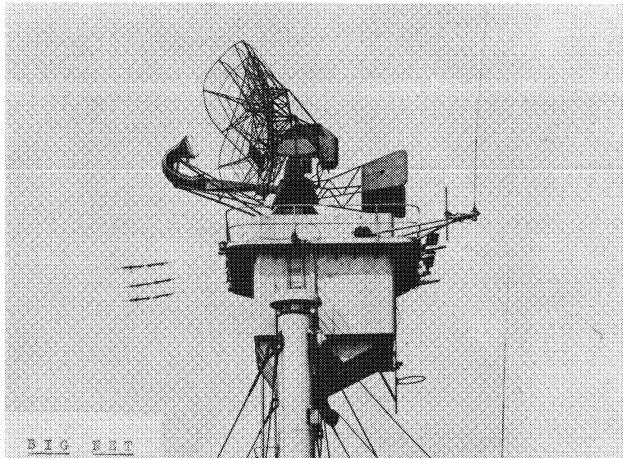
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B I G N E T R A D A R

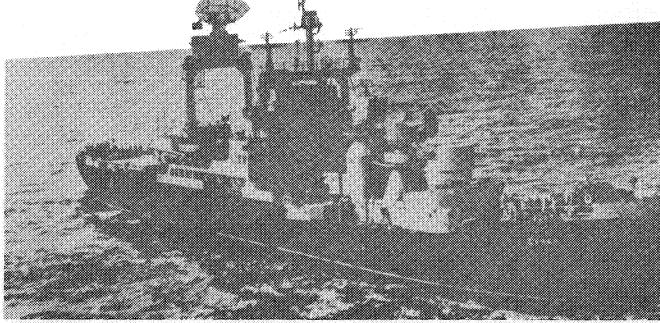
BIG NET, an air search radar, was first seen about two years ago on a SVERDLOV-class cruiser. It has also appeared on the SIBIR-class Range Instrumentation Ship, and is mounted on a platform between the after king-posts.



B I G N E T

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BIG NET

SIBIR CLASS RANGE INSTRUMENTATION SHIP

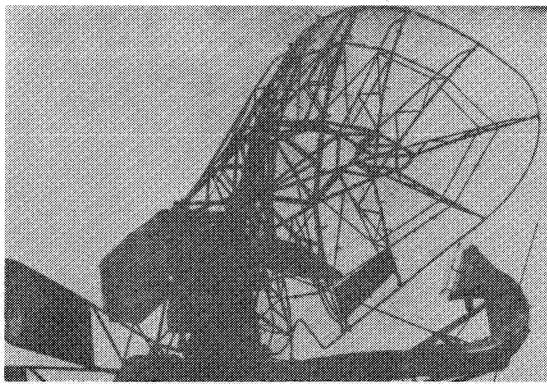
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BIG NET

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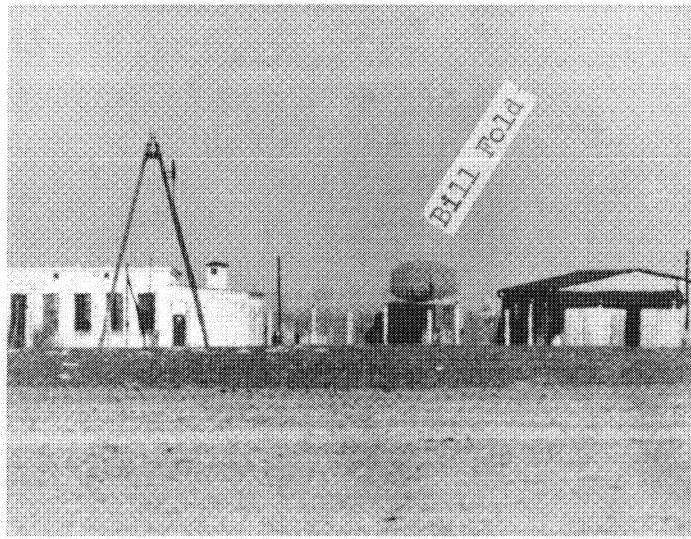
70b

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B I L L F O L D R A D A R

BILL FOLD is a new search radar used for airport surveillance which has recently been observed in Poland. From information available, it is estimated to be a mobile version of LAND FALL; reference, therefore, is made to LAND FALL for additional details concerning the physical and electronic characteristics of this radar.

BILL FOLD might well be the replacement for NYSA C as the search set in the NYSA GCI system.

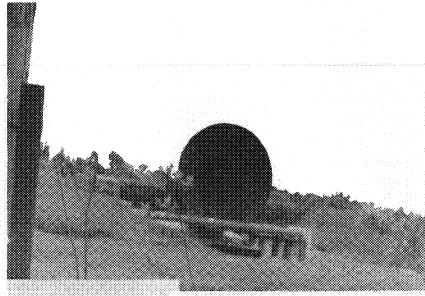


B I L L F O L D, a new search radar

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F I R E W H E E L

The FIRE WHEEL is a dish-shaped radar antenna on the middle "Director" installation on the foredeck of the ship shown, *page 70a* and also recently reported in Germany. It was originally developed as a target-tracking radar for land-based antiaircraft batteries, and now that the FIRE WHEEL is being placed on the SIBIR-Class ships, it would be useful for tracking missiles.



FIRE WHEEL
Fire Control Radar

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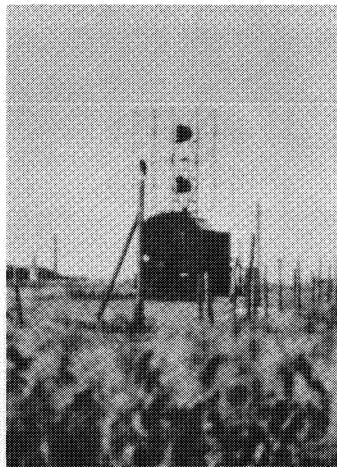
F L A T F A C E

F L A T F A C E , a highly mobile radar, with complex antenna.

FLAT FACE is a highly mobile, sophisticated radar with a complex antenna design. In transit the reflector is placed surface side down on the roof of its transport vehicle, a ZIL-151 van. A power generator, upon which is transported part of the antenna reflector support mechanism, is towed by a prime mover.

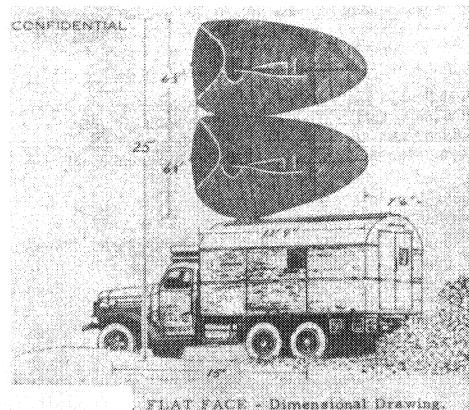
In operation, it is estimated the reflector is erected so that it appears as two vertically stacked parabolic sections.

FLAT FACE's function would be medium range surveillance and/or fire-control acquisition, and because of its high degree of mobility, it could be used for some tactical functions.



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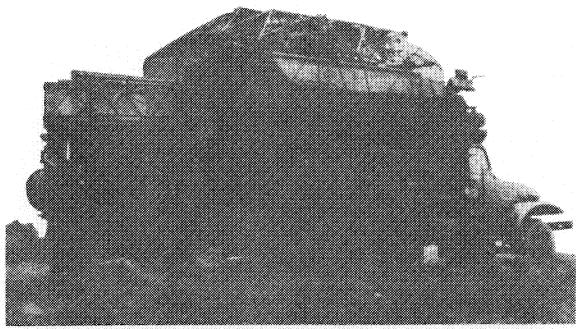
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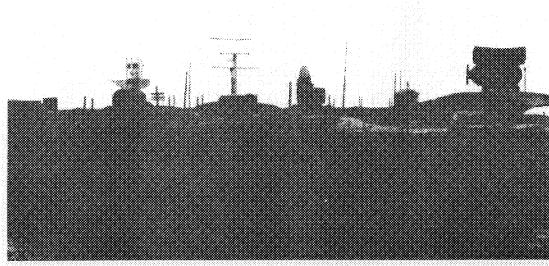
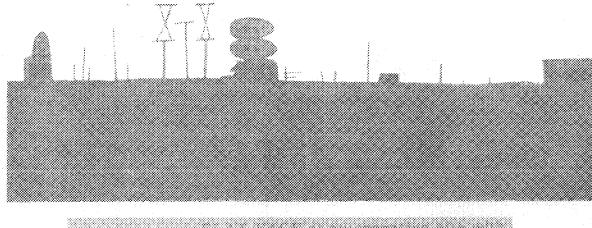
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FACE IN TRANSIT FOLDED OVER TOP OF VAN



FLAT FACE MOUNTED ON ZIS 151 COMMUNICATIONS TYPE VAN

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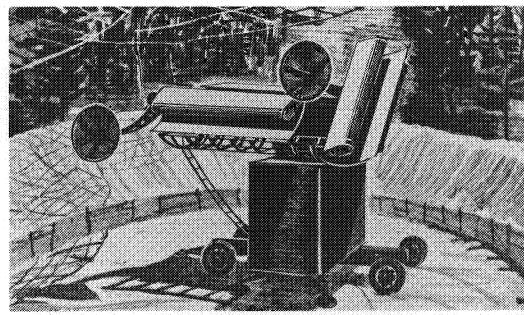
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F R U I T S E T

FRUIT SET, a tracking and control unit, is the heart of the electronic system of the "Glau-Type" SAM site. A trailer carries an assemblage of antennas: two trough and two parabolic dishes. The cab and antenna assemblage probably rotate as a unit on the wheeled base. When a potential target is discerned on the SPOONREST radar screen, the bearing presumably is communicated to the FRUIT SET control operator. The beams of the two troughs move back and forth to scan a limited sector, one scanning the azimuth and the other elevation.



PROSPECTIVE DRAWING - FRUIT SET

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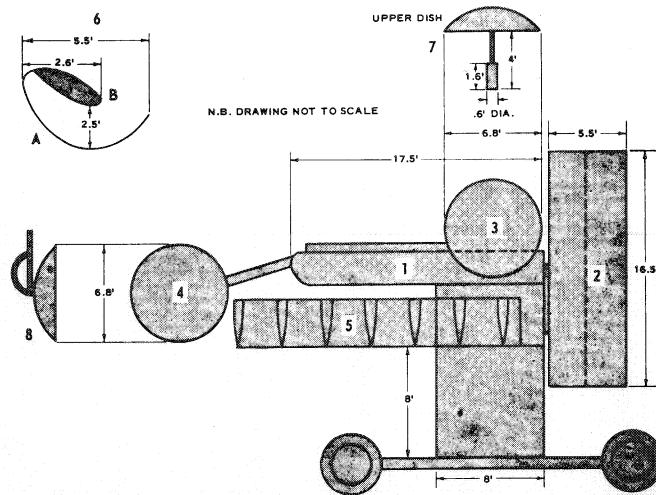
PHOTOGRAPH - Possible surface-to-air missile guidance system
-- FRUIT SET --

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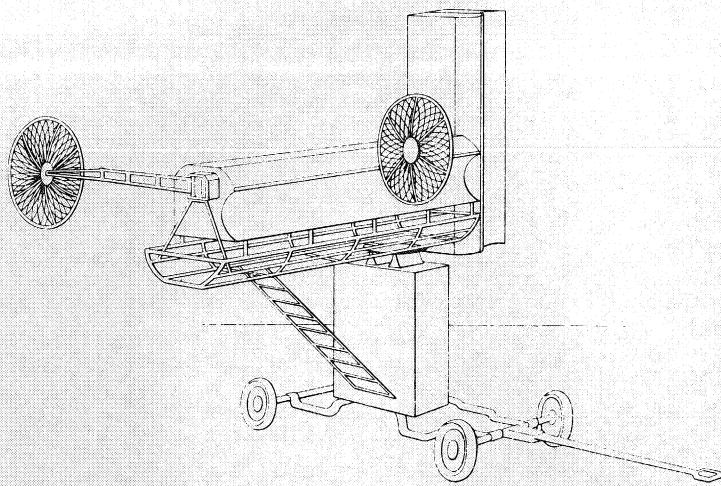
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FRUIT SET - A line drawing of Soviet missile guidance radar, consisting of a cab, atop which are mounted horizontal and vertical trough-type antennas and two parabolic dish-shaped antennas. The entire unit is mounted on a low, wheeled carriage.

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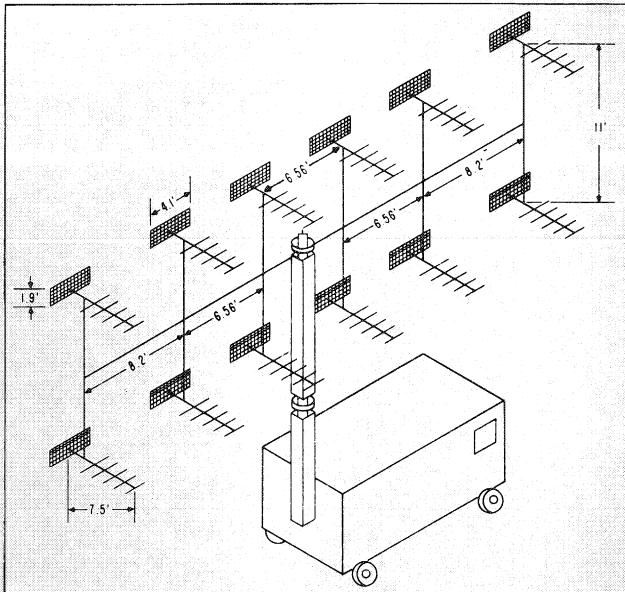


FRUIT SET, SOVIET TRACKING AND MISSILE GUIDANCE RADAR UNIT

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S P O O N R E S T

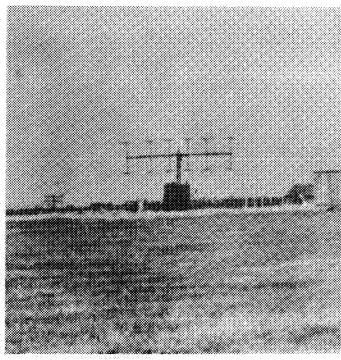
SPOON REST is considered the initial acquisition system for the missile guidance radar FRUIT SET, used at the "Glau-Type" SAM Site, as well as in support of AAA sites. The SPOON REST antenna is a two-stack, six-bay, broadside array of 12 yagis, with a reflector screen behind each yagi. The whole is supported by a rotatable mast, which may have provisions for tilting the array.



SPOONREST, SOVIET EARLY-WARNING RADAR

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SPOON REST Radar

-photograph

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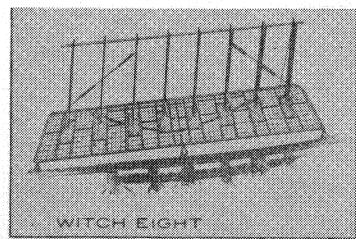
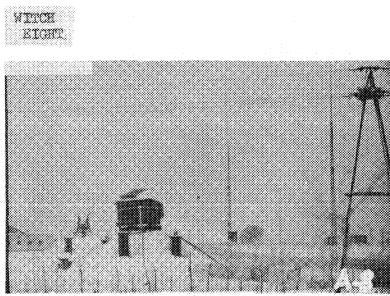
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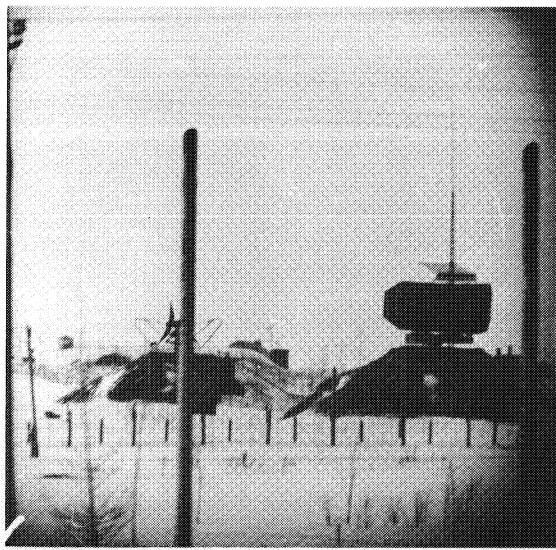
WITCH EIGHT

From a distance, the WITCH EIGHT array looks very similar to the WITCH FOUR antenna except that it consists of eight elements extending 13 feet along the top of the GAGE reflector, each element being roughly 13 feet long. Like the other arrays, WITCH EIGHT is mounted at a 20 degree angle with the horizon.



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WITCH EIGHT radar mounted on a GAGE.

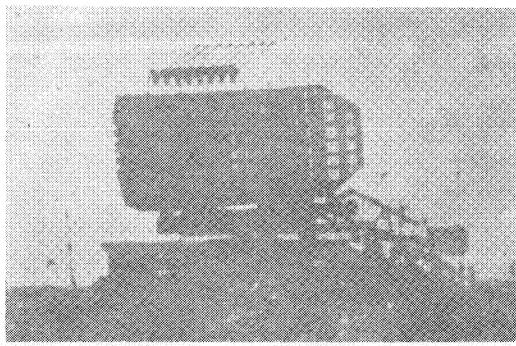
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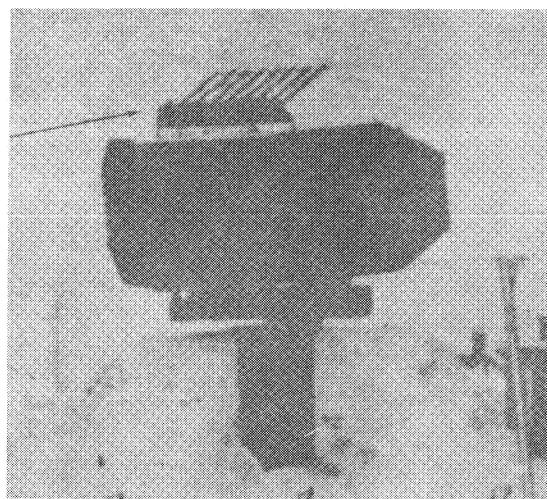
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WITCH EIGHT



WITCH EIGHT

A photograph showing an eight element array mounted on the upper edge of a GAGE radar reflector, near Moscow. (1958)

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ALPHABETICAL LISTING

SUPPLEMENT - New-type Radar (July 1960)

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